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**Results From the Evaluation of the  
HEALTHCOM Project in Central Java  
1988-1989**

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March 1991

## EXECUTIVE SUMMARY

The HEALTHCOM project in Central Java worked within a larger USAID-funded child survival project called ROVITA (Rehidrasi Oral dan Vitamin A) which started in October 1986 and was a cooperative effort of the Department of Health, Diponegoro University, and Helen Keller International. The ROVITA project worked in two regencies in Central Java, Jepara and Demak and had two target interventions -- distribution of Vitamin A capsules every February and August to prevent problems related to Vitamin A deficiency in young children and oral rehydration therapy to prevent dehydration due to diarrhea.

The HEALTHCOM project became a fourth partner in these efforts, providing technical assistance for activities related to social marketing and communication, such as health-worker training, development of printed materials and mass media campaigns, and communication evaluation. The program attempted to reach mothers with informational messages broadcast on the radio and through face-to-face contact with health workers and volunteers. Health workers and volunteers received special manuals and flyers and were involved in face-to-face training sessions.

The design for the evaluation of the communication activities consisted of two surveys in one of the experimental regencies (Demak) and in a control regency (Rembang). The first survey was carried out in October 1988 (after one round of Vitamin A capsules activities) and a second survey in October 1989 (after three Vitamin A capsule distribution months). Since true baseline data could not be collected prior to the Vitamin A capsule distribution in August 1988, the control regency was chosen to allow a tentative assessment of the effects of August One to five activities in the intervention regency. The two regencies were comparable, except that the control regency was later determined to have higher access to monthly health posts.

Capsule distribution and communication activities continued in Central Java beyond the original contract, and a third survey was conducted by ROVITA in October 1990. Thus, this report should be considered an interim report in an ongoing program.

## **Results for Vitamin A Capsules**

### *Coverage*

There was an increase in Vitamin A capsule coverage of children one to five years old in Demak, the intervention regency, between October 1988 and October 1989. However, this increase was statistically significant only in communities in which there was a health post, the primary location where Vitamin A capsules are distributed. In the intervention regency, Vitamin A capsule coverage of eligible children increased from 24.2 percent to 40.4 percent in communities with a health post (significant at  $p < .001$ ), but did not change in communities without a health post. There was no change in coverage in communities with a health post in the control area. Together, these findings provide evidence that the ROVITA program had a positive impact on Vitamin A capsule coverage in communities with a health post.

In the intervention area, mothers in communities with a health post showed an increase in receiving Vitamin A capsules at the health post rather than through other means (significant at  $p < .0004$ ). Mothers in communities without a health post showed a decrease in reported receipt of Vitamin A capsules from the health post and a substantial increase in obtaining a capsule through a home visit from a health volunteer (significant at  $p < .0007$ ).

Overall, the health post and home visit systems were mothers' primary sources for obtaining Vitamin A capsules in the two areas in the study. There were few other outlets for obtaining the capsules. Health posts were conducted only one morning a month in a community, thus Vitamin A capsules were available to individual mothers one morning every six months. In the intervention regency, 50 percent of the mothers had a health post in their own community. In the control regency, 95 percent lived in a community with a health post. Average travel time to the nearest health post (not necessarily in the community) was 12 minutes in the intervention area and 8 minutes in the control area.

Access to capsules (only one morning a month and only at health posts or from health volunteers) is a serious constraint to widespread distribution of Vitamin A capsules in Central Java. Increasing the number of distribution points and/or increasing the number of days Vitamin A capsules are available would help to increase overall coverage of eligible children in the province.

## *Awareness*

Awareness of the term "Vitamin A capsule" increased significantly among mothers in the intervention regency (both those with eligible children and also those with children still too young to receive Vitamin A capsules), from 34 percent in 1988 to 47.8 percent in 1989 ( $p < .0001$ ). Mothers in the control regency showed no significant change in awareness. This indicates that the ROVITA activities had a positive impact on awareness of Vitamin A capsules.

The increase in awareness is seen primarily in communities with a health post, where having heard of Vitamin A capsules increased from 35.8 percent in 1988 to 55 percent in 1989 (significant at  $p < .0001$ ). Although mothers with no health post in the community also showed an increase in awareness (from 32.1 percent to 40.6 percent), this difference was not statistically significant.

There was also a significant increase, from 57 to 69 percent, in overall awareness (having heard of Vitamin A capsules or having seen them before) in the intervention regency and not the control area. The increase in awareness in the intervention regency was much larger in communities with a health post than in communities without a health post.

## *Knowledge*

On the whole, the majority of mothers in the sample did not know and did not learn some of the basic information about Vitamin A capsules -- where and when to get capsules, the ages at which children should get Vitamin A capsules, and whether only a healthy or only a sick child should be given a capsule. There is some evidence of a slight improvement in knowledge during the year of activities between the two surveys, but it is not clear that the changes are due to the communication campaigns.

## *Campaign Exposure*

Access and exposure to the channels used by the Vitamin A program (radio, banners, and health volunteers) are issues that need to be addressed further. Although ever hearing Vitamin A messages increased, by 1989 only 21 percent of mothers in the intervention area said they had ever heard radio messages about Vitamin A capsules (five percent heard the messages during the last broadcast period). There was no change in exposure to the banners -- in both surveys, nine percent of mothers said they had ever seen a banner. Less

than half the mothers had a radio in their household and just over one-third said they listened frequently (four to seven days a week).

The majority of mothers who had heard of Vitamin A capsules named the health post or health volunteers as their source of information (whether or not they had a health post in their community). However, contact with these facilities or health workers was not frequent or regular for the majority of mothers.

Overall, approximately three quarters of mothers in the intervention potentially could have been reached with messages about Vitamin A capsules through the radio, health center, or health post or volunteer (if they listened to the radio at the time the messages were broadcast or if the health worker told them about the distribution during their visit). One quarter of the mothers can be considered the "hard to reach" group: they did not listen to the radio more than three times a week and had not been to the health center or health post in the last two months. It is unlikely this group would be reached by the channels used in the campaign.

The data suggest that, to increase exposure to information about Vitamin A capsules and the distribution, the program will have to find other channels to disseminate information, increase the frequency of radio messages and interpersonal publicity, or both. Two possible avenues for disseminating information about the Vitamin A capsule distribution, particularly about the time and location in each area, are the village leadership hierarchy and the parallel women's organization or Family Welfare Movement (PKK).

#### *Vitamin A Coverage and Campaign Exposure*

A mother's exposure to radio messages and the banners was not significantly associated with having obtained a Vitamin A capsule for her eligible child during the August 1989 distribution period (after controlling for socioeconomic characteristics). However, exposure to the health system was related to coverage. Of mothers who had ever taken a child for immunization, forty percent had taken their youngest eligible child for a Vitamin A capsule during the campaign, compared to 12 percent of those whose child had never been immunized. Frequency of health post attendance was also a significant factor in Vitamin A capsule coverage in the intervention area. Among mothers who had ever been to a health post, those who attended the post more frequently were significantly more likely to have a child who received a Vitamin A capsule during the campaign than those who attended less frequently.

Children living in communities with a health post were more likely to have received a Vitamin A capsule than those in a community without a health post. In addition, mothers who lived farther from the health post were less likely to have obtained a Vitamin A capsule for their child than those living closer to the health post. By far, the largest level of Vitamin A capsule coverage was among children living within five minutes of a health post in their community (53 percent). Other children, those more than five minutes from a health post (whether in their community or not) and those in communities with no health post had much lower rates of coverage (24 to 32 percent).

This suggests that many mothers may not have been getting information about the timing of the health post and the Vitamin A distribution. If the primary means of advertising the presence of the health post is by loudspeaker and personal contact, the number of mothers that can be reached is limited by geography. Those living within a smaller radius of a health post or a loudspeaker are more likely to hear about the health post.

Mothers with more education were more likely to have taken their child for Vitamin during the campaign than mothers with less education.

Among children eligible for Vitamin A (one to five years old), younger children were more likely to have received a capsule during the campaign than older children. The program may want to specifically address how to inform mothers that children over two still need Vitamin A and to motivate them to bring these children to get the capsules.

There is some indication that there has been an improvement between 1988 and 1989 in the Vitamin A distribution system, either from the health centers to the health posts or from the volunteers working at the posts to the children.

Overall, the data suggest the need for the use of more channels of communication or channels that reach larger numbers of mothers, particularly those with less education and those with children over two years old. Exposure to the radio messages and the banner were not related to Vitamin A coverage. Use of the health system was associated with coverage, but health workers are not likely to reach the majority of mothers. More information is needed on the information networks that would best reach the largest number of women, such as the formal leaders of the villages, or their wives, in their role as members of the Family Welfare Movement or village women's organization (PKK)

### *Awareness of Vitamin A and Campaign Exposure*

Exposure to the radio and having seen the Vitamin A banner were significantly associated with mothers having heard the term "Vitamin A capsule" in the intervention regency. Approximately two-thirds of mothers with high radio exposure had heard of Vitamin A capsules, compared to half the mothers with some radio exposure, and only one-third with no radio exposure. Ninety-three percent of mothers who had seen a banner said they had heard of the term, "Vitamin A capsule," compared to 44 percent who had not seen a banner.

Exposure to interpersonal sources (contact with the health system and contact with the health post in the last 5-6 months) were also significantly associated with awareness, but having a health post in the community was not (after controlling for exposure to health workers). Fifty-eight percent of mothers who had taken their oldest child under five for vaccination had heard of Vitamin A capsules, compared to 23 percent who had not taken the child for immunization. Approximately three quarters of the women who attended the health post regularly (5 or more times) had heard of Vitamin A capsules, compared to mothers who didn't attend at all (35 percent aware of Vitamin A capsules) and those who attended every other month or less often (39 to 44 percent).

Mothers with more education were more likely to have heard of Vitamin A capsules than mothers with less education. Again, special efforts may have to be made to reach and inform less educated mothers about Vitamin A.

Radio, visual materials and health workers can play a role in increasing awareness of Vitamin A capsules in Central Java. However, the impact of these channels will be limited by their reach -- none of them reached an overwhelming majority of the mothers.

### *Conclusion*

Overall, the results showed some positive impact of the program on awareness of Vitamin A capsules and on capsule coverage of eligible children. The major constraint to increasing Vitamin A coverage in the future is access -- to services and to information. Mass media and interpersonal communication channels can provide information. It is important to continue to use a coordinated multi-channel approach and to explore the use of other channels that will reach more women and that will be able to provide mothers with specific information about the time and location of the Vitamin A capsule distribution in their local area.

## **Results for Oral Rehydration Therapy**

The ORT activities in Central Java were carried out in three stages. In the first phase, mothers were told to give their children more fluids during diarrhea. In the second and third phases, continued feeding and use of ORS were added. Because the second phase was still underway in October 1989, this evaluation focused on mother's behavior and knowledge related to giving fluids during diarrhea.

There was an increase in mothers in the intervention regency saying they gave more than usual to drink during diarrhea (from 39 percent in 1988 to 56 percent in 1989). However, the increase was also statistically significant in the control regency, and the difference in responses between the two regencies at each time point was not significant. This suggests that the increase in correct behavior was due to factors other than the ROVITA diarrhea campaigns.

There was also a significant increase in knowledge about giving fluids during diarrhea between 1988 and 1989, but again in both the intervention and the control regencies. On the whole, knowledge about the danger of diarrhea and the need for liquids was quite high by 1989. Approximately 80 percent of mothers in both regencies said diarrhea was dangerous for young children and around 60 percent said children need more to drink during diarrhea.

Overall, only a small proportion of the mothers in the intervention sample seem to have been exposed to radio messages about diarrhea. In the intervention regency, there was a significant (although small) increase in having heard messages about diarrhea at all (from 18 to 26 percent) and having heard messages in the last two weeks, during which the second phase broadcasts were occurring (from 4 to 12 percent). Eight percent of the mothers in the intervention regency could name the child in the radio spots.

Although mothers in the intervention area showed some evidence of exposure to the campaign broadcasts, on the whole, the radio exposure figures are similar for intervention and control mothers. The most frequently heard radio messages were about Oralit and SSS. The data indicate that there was other information besides the ROVITA information available on radio in both areas and mothers seemed to remember this material more readily.

Overall, we found that mothers in the intervention and the control areas had similar exposure to interpersonal channels and were hearing similar information from the health workers. The majority of

mothers who had heard about diarrhea from a health worker (at a health center or a health post) remembered hearing about Oralit or SSS, not about drinks in general. This may be because health workers stressed Oralit more, or because mothers were more likely to remember a special mixture than giving more of everyday drinks.

Overall, although there were significant increases in giving more liquids during diarrhea and in knowledge about diarrhea among mothers in the intervention area between 1988 and 1989, we cannot conclude that these increases were the result of ROVITA activities. Similar significant increases were also seen in Rembang, the control regency. There is slight evidence that the ROVITA campaigns spilled over into the control area. However, the findings suggest more strongly that other educational or promotional activities were taking place in Central Java in addition to the ROVITA mass media messages and training.

### **Institutionalization**

The HEALTHCOM methodology includes pre-program research to understand the audience and context, strategy development and planning, strategy and message testing, integrated use of multiple channels, monitoring, and evaluation. On the whole, the members of the ROVITA team had learned the concepts and skills necessary to apply the methodology in future activities. In particular, they had adopted the methodology's orientation toward the audience, the need for strategy development, and the importance of pretesting. Some team members were applying parts of the methodology in their other work. Original research (pre-program research, monitoring, and evaluation) was considered important, but a luxury that might not be affordable in the future. Overall, the methodology was considered by the Indonesians to be expensive and manpower intensive, and team members envisioned scaling back in future applications of the methodology. HEALTHCOM may want to focus some attention on where the methodology can be scaled back and where it must be followed more strictly.

Although the methodology had been accepted and used by the individual team members, it had not been incorporated into the routine of either the health department or Diponegoro University at the time these interviews were conducted. ROVITA was a semi-autonomous entity, with strong links to the health department and university bureaucracies. This allowed the project to carry out its activities more efficiently with greater cooperation between groups, but also made the project activities "special" and limited full participation in all phases of the methodology primarily to the project team members. Two constraints to use of the methodology in the future were discussed by the team members -- the lack of understanding of the methodology and the skills to use it by lower-level staff in the health department (particularly the health

educators at the regency level) and a lack of understanding of and commitment to social marketing at the national level, particularly in terms of providing the time and money to carry out the different activities. Since these interviews were carried out in early 1990, there are signs of greater commitment at the national level. The national Department of Health has committed time and donor funds to applying the health communication approach to combat Vitamin A deficiency in all of Central Java, and then nationally.

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## BACKGROUND AND DESCRIPTION OF THE HEALTHCOM PROGRAM<sup>1</sup>

Health Communication for Child Survival (HEALTHCOM) was a five-year communication program designed to assist developing countries promote the widespread use of effective child survival strategies. HEALTHCOM was sponsored by the Office of Health and the Office of Education within the Bureau for Science and Technology of the U.S. Agency for International Development. The program was administered by the Academy for Educational Development. The Center for International, Health, and Development Communication (CIHDC) at the Annenberg School for Communication, University of Pennsylvania was responsible for evaluating the impact of HEALTHCOM activities under sub-contract to the Academy for Educational Development.

The program worked in 17 countries, using a research and development approach to promote changes in behavior that affect child health. The approach draws from the disciplines of social marketing, communications, behavioral analysis, instructional design, and anthropology, among others. Specific activities focused on immunization, the control of diarrhea, breastfeeding, nutrition, growth monitoring, hygiene, and other behavior that promote child survival.

While its application varied from country to country, the HEALTHCOM approach use in all sites generally combined pre-program and continuing research with a multiple channel communication program to address public health problems on a national level. The approach has three important stages: pre-program planning and development, the instructional interventions, and ongoing monitoring and evaluation. The planning phase gathers information so that each project can be tailored to the specific needs of the target population. The instructional interventions combine some or all of radio, television, print, and face-to-face communication channels to educate an audience about a specific health theme. Ongoing monitoring and evaluation contribute feedback about the relative success of different aspects of the program, allowing for

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<sup>1</sup>This evaluation could not have been completed without the advice and assistance of our colleagues in Indonesia and the United States. We would like to thank the following members of the ROVITA project team for their help in carrying out and interpreting the evaluation surveys: Victor Sartono (Social Marketing), Sudaryono (Vitamin A), Pratamahardja (Diarrheal Disease), and Suocarto (Field Director). Thomas Reis, the HEALTHCOM Resident Advisor in Central Java, and Willard Shaw, the AED Project Manager, provided invaluable insights that helped guide the research and the analysis. Staff from Survey Research Indonesia helped develop the research components and carried out all data collection activities. The surveys would not have been possible without the financial assistance provided by Helen Keller International through the ROVITA project. We would also like to thank the staff and students of the CIHDC for their help in designing the evaluation and in interpreting the results.

adjustments during the campaign. The final evaluation serves as an example for subsequent programs using the public health communication approach, in the same country or elsewhere.<sup>2</sup>

### **HEALTHCOM in Central Java, Indonesia**

The HEALTHCOM project in Central Java worked within a larger USAID-funded child survival project called ROVITA (Rehidrasi Oral dan Vitamin A) which started in October 1986. The ROVITA project was a cooperative effort of the Department of Health (Nutrition, Control of Diarrheal Diseases, and Health Education), Diponegoro University, and Helen Keller International.

The ROVITA project worked in two regencies in Central Java, Jepara and Demak and had two target interventions -- distribution of Vitamin A capsules to prevent problems related to Vitamin A deficiency in young children and oral rehydration therapy to prevent dehydration due to diarrhea. The goals of the ROVITA project were:

To improve the distribution of megadose Vitamin A to achieve a coverage of 90 percent of children one to five years old (through improving logistics of distribution and increasing demand from mothers).

To develop a distribution system for oral rehydration solution packets and to improve diarrhea case management through training mothers and health workers.

To apply social marketing techniques, including systematic coordinated communications, to achieve the first two goals.

To measure the change in incidence and severity of diarrhea in a small cohort of children before and after Vitamin A supplementation.<sup>3</sup>

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<sup>2</sup>For more information on the HEALTHCOM methodology see Rasmuson, M.R., Seidel, R.E., Smith, W.A., & Booth, E.M. Communication for Child Survival. Prepared by the Academy for Educational Development for the U.S. Agency for International Development, June 1988.

<sup>3</sup>Department of Health, Republic of Indonesia and Helen Keller International. "Implementation Plan: ROVITA Project -- A Double Intervention of Oral Rehydration Therapy and Vitamin A in Two Kabupaten in Central Java," March 1987.

The HEALTHCOM project became a fourth partner in the ROVITA activities. The HEALTHCOM Resident Advisor and consultants were primarily responsible for working with the Health Education staff on activities related to social marketing and communication, such as training of health workers, development of printed materials and mass media campaigns, and communication evaluation.

Three major target groups were addressed: mothers (and other caretakers of children under the age of five), health care workers at regional clinics (*puskesmas* workers), and local health volunteers (*kaders*). The program attempted to reach mothers with informational messages broadcast on the radio and through face-to-face contact with health workers and volunteers. Health workers and volunteers received special manuals and flyers and were involved in face-to-face training sessions.

### History of the ROVITA and HEALTHCOM Projects in Central Java<sup>4</sup>

The ROVITA project officially started in Central Java in October 1986. The HEALTHCOM Resident Advisor arrived in Central Java in April 1988. The project consisted of four major components: Vitamin A capsule distribution, oral rehydration therapy, social marketing and communication, and evaluation (of the project and its impact, and of the effect of Vitamin A on diarrheal disease incidence and severity). This history will focus primarily on the activities related to the communication component.

The communication activities followed quite closely the steps detailed in the HEALTHCOM manual: pre-program research, strategy development, intervention and pretesting, and monitoring and evaluation. The specific communication/social marketing activities carried out were: formative research; training of health workers; development, pretesting, and dissemination of mass media materials; monitoring and evaluation; motivational activities for health workers; and professional development activities for health department officials and university staff.

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<sup>4</sup>The information on the history of activities in Central Java is taken primarily from the ROVITA Implementation Plan, monthly reports from the HEALTHCOM Resident Advisor, and conversations with project personnel.

### *Formative research*

Before the start of activities in Central Java, the project staff collected information to help in the development of the overall project and communication strategies. The team reviewed the experience of other social marketing projects in Indonesia and examined health department figures on child registration and Vitamin A<sup>5</sup> distribution. They also collected data on use of Vitamin A-rich foods and capsules and on oral rehydration solution distribution and coverage. From June 1987 through June 1988, an ethnographic study was developed and implemented to examine mothers' attitudes and behavior related to the treatment of diarrhea and the use of Vitamin A to prevent blindness. This study also asked about media access and use.

### *Training of health workers*

One of the first activities in the ROVITA project was to develop an overall strategy and specific educational materials to train health workers about Vitamin A capsules and diarrhea management. The program used a two-tiered training approach based on that developed for the HEALTHCOM program in West Java - health center workers were trained and they then trained health volunteers in their catchment areas. The program developed a training module for health center trainers and local health volunteers and manuals on Vitamin A and diarrhea. These manuals were pretested extensively before distribution in 1988 and were revised and redistributed in 1989 in response to comments from the field. Health volunteers from each health post in the two intervention areas were trained in Vitamin A distribution and diarrhea management in June 1988, with a refresher course in June 1989.

### *Mass Media Activities*

The primary mass media channels used in the program in Central Java were radio and banners. Between the start of activities and March 1990, the health education staff developed a total of eight radio spots about Vitamin A, five spots about diarrhea, three spots for health volunteer motivation, and two banners (Vitamin A and diarrhea) for display in the villages. In early 1990, a flyer was developed to send to health volunteers to motivate them to work at the health post during the August 1990 distribution. All communication materials were pretested extensively with rural mothers or volunteers.

Vitamin A radio spots were broadcast and banners were displayed before and during each distribution month. The radio spots were revised after each distribution in response to findings from monitoring of

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<sup>5</sup>The Vitamin A distributed during the project was in the form of a megadose capsule. When we use the term "Vitamin A" in this report we are referring to these capsules, unless otherwise stated.

mothers or from the evaluation survey. Diarrhea spots were developed and broadcast in three phases, each phase building on what had been taught in the previous phase. Spots were broadcast up to ten times a day on four to six radio stations during the campaigns. More specific information on the spots and the banners is available in the sections to follow on the Vitamin A and Diarrhea campaigns.

### *Monitoring and Evaluation*

Monitoring and evaluation were an important part of the Vitamin A and diarrhea activities. Radio broadcasts on all stations were monitored during each campaign by two women hired independently to listen at the times the messages had been contracted to be played. This activity showed that the majority of the radio stations were broadcasting the messages as contracted.

During campaign activities, the health education staff also carried out interviews in a number of villages to monitor access to and understanding of the radio and banner messages, knowledge, and behavior. In August 1988 mothers, health center workers and health volunteers were interviewed. In April 1989, only mothers were interviewed. The information collected in these activities contributed to the revisions made to the communication materials.

Other monitoring activities included review of figures on capsule distribution collected from the health posts and small studies of shopkeepers given oral rehydration packets to sell and of mothers at the health post with a child with diarrhea. In March 1990, the nutrition and diarrhea units collaborated on a study to examine why many mothers don't go regularly to the health posts.

The ROVITA project had an evaluation component which included a number of surveys of health workers and mothers and a longitudinal study of morbidity. These activities were carried out by the ROVITA staff.

HEALTHCOM and ROVITA staff collaborated in designing and implementing a study to measure the impact of the communication activities related to Vitamin A and oral rehydration therapy. This study consisted of a survey of mothers in October 1988 and another in October 1989. The CIHDC staff also carried out interviews with project personnel about the history of the project and its accomplishments. This document reports the findings of the 1988 and 1989 surveys with mothers and the project staff interviews.

### *Motivation of Health Volunteers*

Studies of health volunteers in Java have indicated high annual turnover of health volunteers and problems with motivation and supervision.<sup>6</sup> Because health volunteers are an integral part of the Vitamin A distribution activity and of health education about diarrhea in Central Java, the project carried out several behavioral studies of health volunteers with the assistance of a consultant from the School of Public Health at San Diego State University. In February and March 1989, health volunteers were observed in their activities at the health posts and were asked open-ended questions related to motivation and job performance. In response to the results of these studies, two interventions for volunteers were developed -- a motivational flyer to be mailed before the Vitamin A distribution months and two radio spots praising the volunteers.

### *Staff Development*

The major approach used to inform the Department of Health and university staff involved in the project about the use of social marketing in health communication was to learn by doing. The project personnel went through the steps of developing a strategy, choosing specific topics and developing messages using research results, pretesting and revising, and monitoring and revising several times.

The senior staff, and particularly the person in charge of health education, participated in a number of workshops. In March 1987, the ROVITA team visited the ORT project in West Java (also receiving technical assistance from HEALTHCOM). In June 1988, the heads of diarrheal disease, nutrition, and health education in Central Java attended a three-day social marketing workshop held by the national Center for Community Health Education to develop national communication strategies for diarrheal disease control. In December 1988 the head of health education attended meetings sponsored by another Vitamin A project in East Java on Vitamin A and meetings with the HEALTHCOM project staff in West Java on diarrhea. In June 1989, members of the ROVITA team participated in the HEALTHCOM Asia Regional Workshop in which staff from the Asian projects shared experiences and analyzed the communication approach used in HEALTHCOM projects. In September 1989, the staff participated in a workshop on social marketing sponsored by Helen Keller International (HKI) for other non-governmental organizations in Indonesia.

In addition, the HEALTHCOM resident advisor and visiting consultants gave periodic lectures to members of the project staff and of the medical faculty at the University of Diponegoro on social marketing, use of

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<sup>6</sup>Judd, M. (1987). Kaders in Indonesia: Literature Review. Prepared for the U.S. Agency for International Development Mission in Indonesia.

qualitative research methods in public health, principles and practices of behavioral observation, and issues in the evaluation of health communication programs.

## EVALUATION METHODOLOGY

The design for the evaluation of the communication activities consisted of two surveys in one of the experimental regencies (Demak) and in a control regency (Rembang). We had hoped to carry out a before-after design, but time pressures to implement the program quickly didn't allow for interviews before the start of the first Vitamin A distribution in August 1988. Therefore, we carried out one survey in October 1988 (after one round of Vitamin A activities) and a second survey in October 1989 (after three Vitamin A distribution months). After the ROVITA project was extended, a third round of data collection was added by ROVITA in October 1990. This evaluation report examines the data from the 1988 and 1989 surveys and should be considered an interim report of ongoing activities.

Since true baseline data could not be collected prior to the Vitamin A distribution in August 1988, a control regency was chosen to allow a tentative assessment of the effects of August 1988 activities in the intervention regency. The control area was also used to measure spontaneous improvements in Vitamin A coverage over time that were not attributable to ROVITA/HEALTHCOM interventions. The regency of Rembang was chosen after careful comparison between Demak and Rembang of government figures on major demographic characteristics and features of the health system.

Mothers in the intervention and control communities were found to be similar on most demographic characteristics. The main difference between the two samples was in access to health posts -- 50 percent of mothers in the intervention area had a health post in their community, compared to 95 percent of mothers in the control regency. We are not certain why this occurred. Overall, the difference between the regencies did not cause any problems in the analysis or interpretation of the results.

The goal of the sampling process was to choose a sample of approximately 800 women -- 500 in the intervention regency and 300 in the control regency. We used a sampling frame designed to yield a systematic random sample of mothers with children below the age of five. The sampling procedure was as follows:

- o Within each regency, five *kecamatan* (sub-districts) were chosen with probabilities proportionate to population.

- o Within each selected kecamatan, six villages (Demak) or four villages (Rembang) were chosen with probabilities proportionate to population.
- o Within each village, two RTs (neighborhoods) were randomly selected (one was used for the 1988 survey sample and the second for the post survey sample to ensure matched samples).
- o When the interviewers arrived at the selected RT, they mapped all the houses, making a list of those with a child under five years of age. They then randomly selected 16 households from this list and interviewed in these households.

This strategy yielded total samples of 799 women in 1988, (480 from Demak and 319 from Rembang) and 791 women in 1989 (479 from Demak and 312 from Rembang).

The ROVITA project hired a market research firm, Survey Research Indonesia (SRI), to develop and implement the sampling plan, assist in translation and pretesting of the questionnaires, carry out the field work, and produce clean copies of the data for analysis. SRI provided twelve native Javanese speaking interviewers and two field supervisors to carry out the surveys. Before each survey, the interviewers were trained over four days in sessions that included classroom-type instruction, role playing, and practice interviews in the field.

Mothers in the sample were interviewed using a questionnaire written in both Indonesian and Javanese. The survey instrument was a cooperative effort between the evaluation team at the University of Pennsylvania, the ROVITA/HEALTHCOM team in Central Java, and Survey Research Indonesia. The questionnaire measured knowledge and practices concerning diarrheal diseases and Vitamin A, background characteristics of the mother and her household, mass media exposure, access to and exposure to health services, and exposure to ROVITA/HEALTHCOM messages. The questionnaire was pretested extensively with mothers in poorer urban and rural areas of Central Java and revised in response to the pretest results and to suggestions by the SRI field workers. In 1989, revisions were made to provide answers to new questions identified in the analysis of the data from the first survey.

In the following sections we will describe the Vitamin A capsule and diarrheal disease programs in Central Java and present the evaluation results in each area.

## THE VITAMIN A PROGRAM IN CENTRAL JAVA

Vitamin A deficiency is a major public health problem in Indonesia. It is estimated that approximately 50-60,000 pre-school age children suffer blinding corneal lesions from this deficiency each year. The prevalence of milder disease is estimated to be about 10 times higher. Megadose Vitamin A capsules given every six months to children from one to five years old can prevent these problems. In Central Java, Vitamin A is distributed free-of-charge every February and August to children between the ages of one and five at an integrated health post (posyandu)<sup>7</sup> or at home.

The ROVITA project planned to increase Vitamin A coverage by improving the system already in place: increasing capsule supply at the village level, training health volunteers in capsule distribution and Vitamin A nutrition, and increasing registration of target children and their receipt of capsules. In addition, the project addressed demand for capsules. Mothers were encouraged to bring children to the health post during February and August. If a registered child did not come to the post during those months, the health volunteers were expected to deliver a capsule to the child's house.<sup>8</sup> The project hoped to achieve registration of all children under five years old.

### Communication Materials on Vitamin A

Communication activities carried out included pre-program research; development and pretesting of communication materials, implementation of the communication activities, monitoring, and revision. A more detailed list of the HEALTHCOM activities carried out for the Vitamin A program is in Table 1.

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<sup>7</sup>The health posts are semi-formal units established by the local health centers and the village leadership in each "dukuh" (or subdivision of approximately 120 families). Health center staff and trained health volunteers meet one morning a month at a central point in the community to provide preventive health services for children under five and mothers (e.g. immunizations, weighing, Vitamin A capsules, oral rehydration solution, family planning advice and referrals).

<sup>8</sup>Implementation Plan..., p 15.

**Table I**  
**Major Implementation Activities**  
**Carried out on Vitamin A Program in Central Java**

October 1986	Start of ROVITA project in Central Java
June 1987- May 1988	Pre-program research - examination of documents, ethnographic/audience study
September 1987- March 1988	Development of Vitamin A and diarrheal disease manuals for volunteers
April-May 1988	Arrival of HEALTHCOM resident advisor Development of creative guidelines and communication objectives from research results Development of Vitamin A radio spots and banners Pretesting and finalization of health volunteer training manuals
May-June 1988	Production and pretesting of three 60-second radio spots on Vitamin A Training of health volunteers
July 1988	Vitamin A banners completed and sent to regency health offices for distribution to village chiefs and health centers
July 25- August 30 1988	Vitamin A radio spots broadcast , banners displayed
August 1988	Vitamin A distribution month Monitoring of radio spot broadcasts, audience reach and comprehension, and banner reach Beginning of revision of volunteer manuals
October 1988	First evaluation survey
December 1988	Pretesting of two revised Vitamin A spots
January 23- February 28 1989	Broadcast of Vitamin A and ORT radio spots, display of banners
February 1989	Vitamin A distribution month Monitoring of radio spot broadcasts
April 1989	Monitoring surveys of mothers about exposure to radio messages and banners
May 1989	Development of new Vitamin A radio spots
June 1989	Training of health volunteers Development of flyers to remind health volunteers of capsule distribution in August
June-July 1989	Production and pretesting of three new radio spots on Vitamin A
July 1989	Flyers sent to health volunteers
July 20- August 30 1989	Vitamin A radio broadcasts, display of banners
August 1989	Vitamin A distribution month
October 1989	Second evaluation survey

The project staff developed a series of integrated communication and training materials on Vitamin A, including a training manual for health volunteers, radio spots, a banner on Vitamin A, and motivational flyers for health volunteers. The manuals were used in training the health volunteers about Vitamin A and as reference materials for the volunteers. They were developed in 1988 and revised in 1989 in response to information about their efficacy and use in the field. The manual discusses sources of Vitamin A, eye diseases or blindness caused by lack of Vitamin A, the role of the health volunteer in distributing Vitamin A, and instructions on how to register children, dispense Vitamin A and keep records. It includes photographs and drawings, along with simple text. See Appendix A for an example of a page from the manual.

During the period covered by this evaluation, two sets of radio spots were developed promoting Vitamin A and the February and August distributions. Three spots were broadcast before and during the August 1988, and revised versions were broadcast for the February 1989 distributions. Three new spots were developed for the August 1989 distribution. Radio spots were in Javanese and Bahasa Indonesia. The spots were aired approximately ten times a day on six radio stations. The format of the spots was a discussion between a woman and her husband or between two health volunteers about the need to get Vitamin A and availability of Vitamin A during February and August at the health post. Examples of the radio scripts are included in Appendix A.

The Vitamin A banners were four or seven-meter long green cloth banners with yellow and white lettering. They included a drawing of a pill bottle with several Vitamin A capsules beside it and information that capsules can be obtained free every February and August at the health post for children under five years old. A seven-meter banner was sent to each of the 38 health centers and a four-meter banner was sent to all village chiefs in the intervention areas. The village chiefs and health workers were expected to store the banners and bring them out before each distribution period.

## **EVALUATION RESULTS -- VITAMIN A**

The specific goals of the Vitamin A intervention in Central Java were to increase capsule coverage of all children between 1 and 5 years of age and to increase awareness of Vitamin A and recognition of the capsules. These goals were to be met through improving the distribution system for Vitamin A and through communication activities (training of health workers to be interpersonal channels of information, development of banners, and broadcast of radio messages about Vitamin A and the distribution months. The objectives of the communication interventions also included increasing mothers' knowledge about the

value of giving a one to five year old child Vitamin A every six months, where and when to get capsules, and the age of people who should have capsules. This evaluation document focuses on the impact of the communication components of the program only and does not assess improvements in the distribution system.

To evaluate the impact of the HEALTHCOM/ROVITA Vitamin A activities, we addressed the following questions:

**Did Vitamin A Coverage Increase During the Intervention?**

**Did Awareness and Recognition of Vitamin A Capsules Increase During the Campaign?**

**Did Mothers Learn about Vitamin A?**

**Were Mothers Exposed to the Campaign?**

**Is Vitamin A Coverage Associated With Exposure to the Campaign?**

**Is Awareness of Vitamin A Associated with Exposure to the Campaign?**

Each of these questions will be examined in turn in the following pages.

### **Did Vitamin A Coverage Increase During the Intervention?**

There was an increase in Vitamin A coverage of eligible children (children one to five years old) during the course of one year<sup>9</sup> during the intervention period in Demak, the intervention regency. However, this increase was significant only in communities in which there was a health post, the primary location where Vitamin A is distributed.

Figure 1 shows the figures for Vitamin A coverage during the year for the entire sample.<sup>10</sup> The percentage of eligible children who received Vitamin A during the most recent capsule distribution increased in the

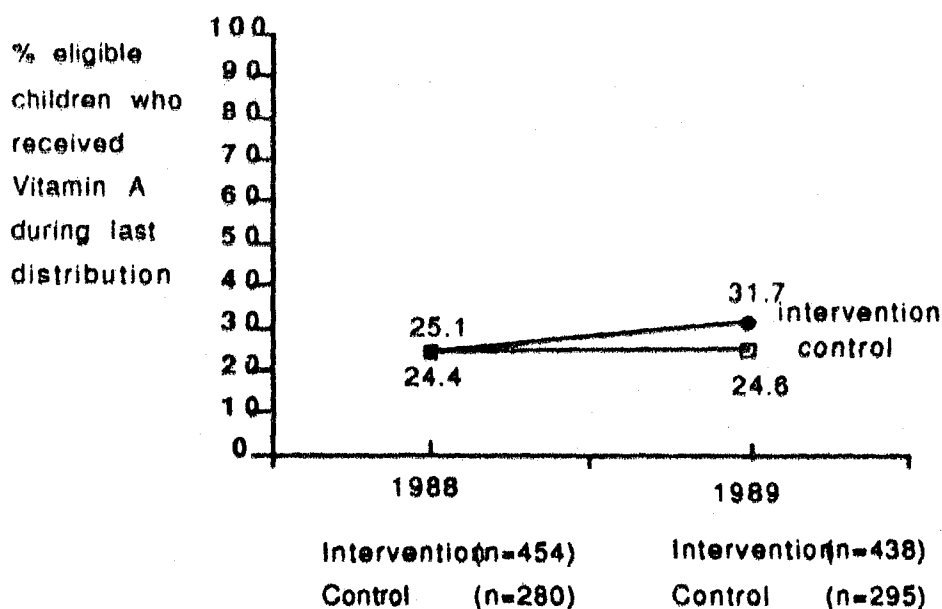
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<sup>9</sup>Note that the first survey in October 1988 took place after several campaign activities had taken place and cannot be considered a true baseline measure. In June 1988, health center workers and health volunteers had received training and manuals on Vitamin A and diarrhea, in late July and throughout August, radio broadcast messages on Vitamin A were broadcast and banners were displayed.

<sup>10</sup>Vitamin A coverage is defined here as the percentage of eligible children (1-5 years old in August) who were reported to have received Vitamin A in August or September. Although August is the official month for Vitamin A

intervention community from 25.1 percent in 1988 to 31.7 percent in 1989 (significant at  $p < .05$ ).<sup>11</sup> In the control community there was no significant change (24.6 percent in 1988 compared to 24.4 percent in 1989).<sup>12</sup>

Figure 1  
Vitamin A Coverage for Both Regencies  
from 1988 to 1989



distribution in Central Java, we have also included children who reportedly received a capsule in September. Mothers' reports of when a child received a capsule may be inaccurate or some level of capsule distribution may continue after the end of August.

<sup>11</sup>The coverage figures among children in the intervention sample do not match government health department figures. The latter estimated that 91 percent of registered children in Demak received Vitamin A capsules during August 1988, compared to our figure of 25.1 percent of eligible children for the same time period. This inconsistency is likely due to different reporting methods. Our study determined coverage by asking if a representative sample of all eligible children (not registered children only) had received Vitamin A and when. The official figures were obtained from records produced by the health posts in each village. Coverage levels were determined by comparing the number of capsules reported to have been distributed in August 1988 to the number of eligible registered children. One can see that the denominators in the two figures are not equivalent. Unfortunately, we have no information on the proportion of eligible children who were registered at the health post.

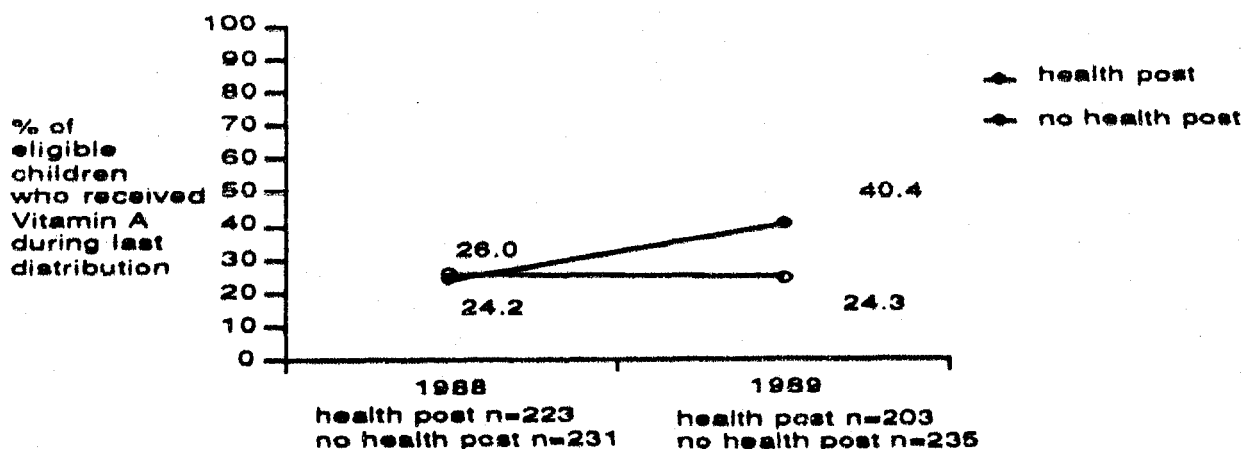
<sup>12</sup>The 24.6 percent coverage of children in the 1988 control sample does not give us a true picture of what the level of Vitamin A coverage must have been in the intervention area before the capsule distribution in August 1988 because of the greater access to health posts in the control communities. The true coverage levels of children before any communication activities probably would have been lower than 24.6 percent, but we cannot document this.

When we compare the change from 1988 to 1989 in the intervention community to that in the control, the difference between the two lines in Figure 1 is not statistically significant. This suggests that, overall, for the whole sample, there was no significant change in Vitamin A coverage during the intervention.

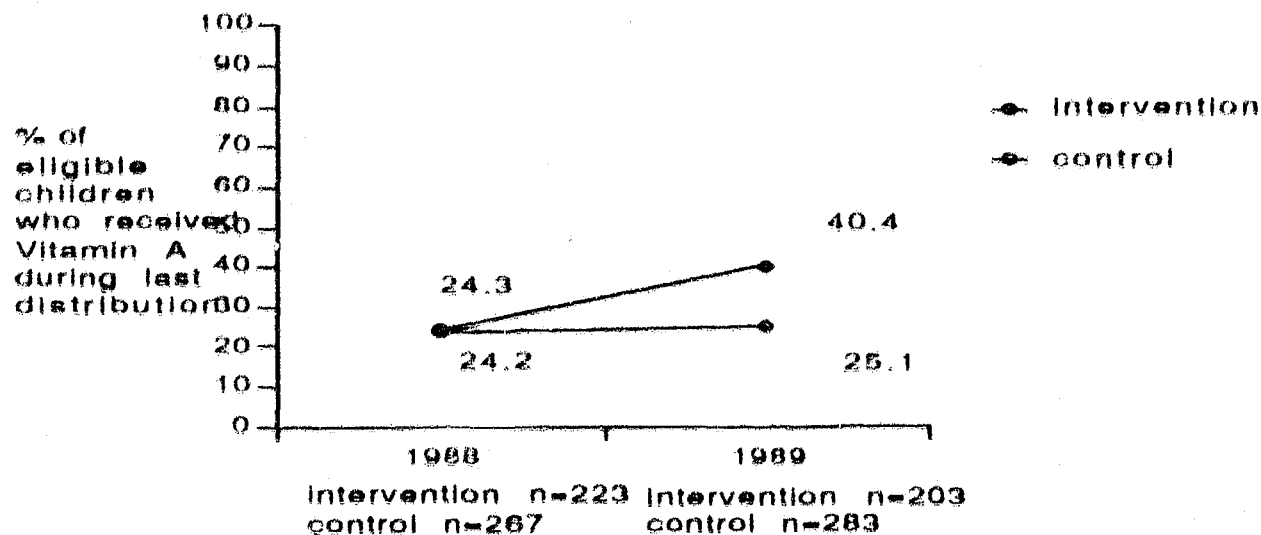
However, if we examine coverage in communities in which there was easier access to Vitamin A (those in which there was a health post or distribution point for the capsule) we find a striking, and significant increase. In the intervention regency, Vitamin A coverage of eligible children increased from 24.2 percent to 40.4 percent in communities with a health post (significant at  $p < .001$ ), but did not change in communities without a health post (see Figure 2). There was no change in communities with a health post in the control area (see Figure 3). Together these findings provide evidence that the program in Central Java had some positive impact on capsule coverage.

These findings also highlight the importance of access in bringing about health behavior change. We looked at the issue of access to capsules in more detail.

**Figure 2**  
**Vitamin A Coverage**  
**by whether the Community had a Health Post --**  
**Intervention Regency**



**Figure 3**  
**Vitamin A Coverage in Communities with a Health Post --**  
**Both Regencies**



#### *Access to Vitamin A Capsules*

In Central Java the primary distribution mechanisms for Vitamin A capsules are taking children to a health post in February and August or receiving capsules at home from health volunteers. According to the project implementation plan, which reflects standard MOH expectations, during the month before Vitamin A distribution, the health post volunteers will go to all houses in their catchment area to register any children under five who are not already part of the health post system. During the distribution months, mothers are expected to bring their children to the health post for Vitamin A. Any registered children who do not come to the health post for Vitamin A are to be identified from the registration list and visited by a health volunteer who will give them a capsule at home.

The health post staff in each community is composed of volunteer workers from the immediate community supervised by a staff member from the nearest health center. In each community with a health post, the post is open one morning a month at a temporary location. The health post in a community may not always be on the same day or in the same location each month. One of the health goals in Central Java is a health post in each *dukuh*, or community, in all villages. However, this has not yet been realized. In

our sample, 50 percent of the mothers in the intervention regency lived in a community with a health post. The mean travel time to the nearest health post was 12 minutes.<sup>13</sup>

We looked at where children received Vitamin A capsules during the most recent campaign period (August or September). The majority of mothers in the intervention regency said they took their children to the health post for their most recent capsule (see Table 2). During the year between the two surveys, there was a significant change (at  $p < .0001$ ) in where children received capsules. Of the children who got a capsule, more reportedly received the capsule at the health post or from a health volunteer at home in 1989 and fewer received a capsule at a health center or from a person who could be a health volunteer but was not specifically named as such (possible volunteer). The decrease in getting Vitamin A from the "possible volunteer" group is likely due to greater precision in the mother's description of where she went. However, it is not certain whether that group in the 1988 study represented receiving a capsule from a volunteer at a health post or at home.

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<sup>13</sup>The control regency had a much higher level of access to health posts, 95 percent of mothers lived in a community with a health post. The average travel time to the nearest health post was 8 minutes.

**Table 2**  
**Location Where Child Received Vitamin A**  
**Capsule During August Distributions --**  
**Intervention Regency**

Location	1988	1989*
Health post	52.9	61.2
At home from volunteer	7.8	22.5
Possible volunteer**	15.7	2.3
Village staff	2.0	3.1
Health center	11.8	4.7
Private doctor/nurse	2.0	0
Shop/pharmacy	2.0	4.7
Other/don't know	5.9	1.6
	n=102	n=129

\*The difference between 1988 and 1989 in location where Vitamin A was obtained is significant at  $p < .0001$ .

\*\*This group includes individuals who are likely to be health volunteers, but were not specifically named as such by the mothers (i.e., women's organization, neighbors, head of the neighborhood).

Mothers in the control regency showed much less variation in their responses to this question, probably because they had greater access to a health post. Ninety-one percent of the 1988 sample and 81 percent of the 1989 sample reported obtaining their most recent capsule from the health post. Three percent of the 1988 sample and seven percent of the 1989 sample reported getting Vitamin A at home from a volunteer. Very few mothers in the control regency lived in a community without a health post.

Table 3 shows the breakdown in location for mothers in intervention communities with and without a health post. Not surprisingly, mothers in communities with a health post showed an increase in going to the post to receive Vitamin A during the distribution period (association significant at  $p < .0004$ ). Mothers in communities without a health post showed a decrease in reporting receiving Vitamin A from the health post and a substantial increase in home visits (significant at  $p < .0007$ ).

**Table 3**  
**Location Where Child Received Vitamin A Capsule During August Distributions**  
**by Presence of a Health Post in the Community --**  
**Intervention Regency**

Location	Health Post in Community*		No Health Post in Community*	
	1988	1989	1988	1989
Health post	52.2	72.4	53.6	45.3
At home from volunteer	2.2	14.5	12.5	34.0
Possible volunteer	10.9	3.9	19.6	0
Village staff	4.3	0	0	7.5
Health center	15.2	3.9	8.9	5.7
Private doctor/nurse	2.2	0	1.8	0
Shop/pharmacy	4.3	5.3	0	3.8
Other	8.6	0	3.6	3.8
	n=46	n=76	n=56	n=53

\*Differences between the 1988 and 1989 figures are significant at  $p < .0001$ .

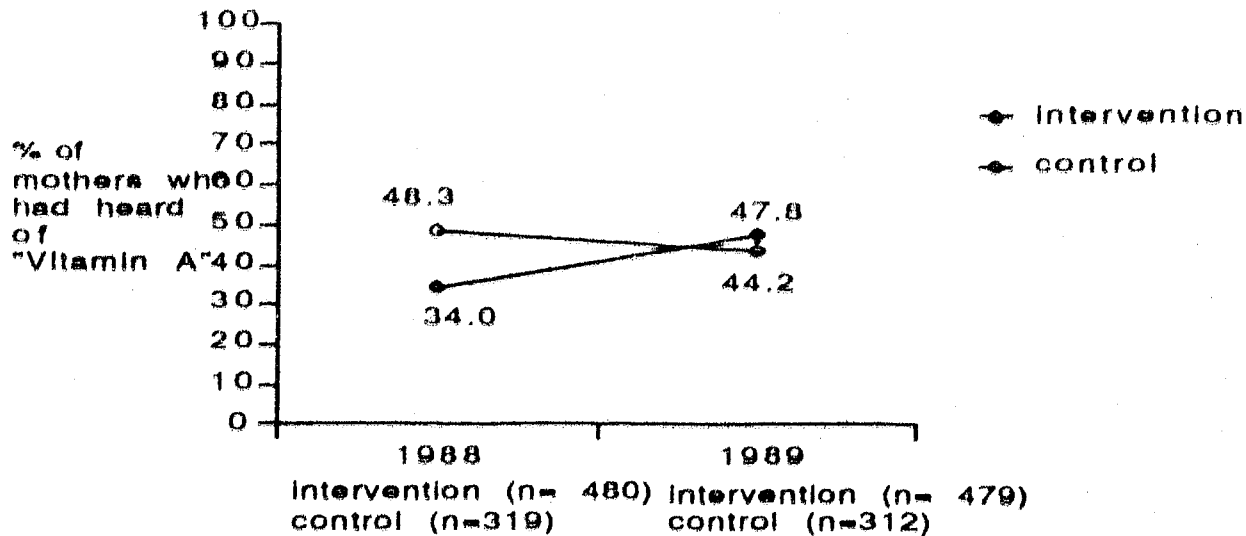
Overall, we can see that the health post and home visit systems were the primary sources for obtaining Vitamin A in the two areas in the study. There seem to be few other outlets for obtaining the capsules.

Access to capsules (only one morning a month and only at health posts or from health volunteers) is a serious constraint to widespread distribution of Vitamin A capsules in Central Java. Increasing the number of distribution points and/or increasing the number of days Vitamin A is available would help to increase overall coverage of eligible children in the province.

#### **Did Awareness and Recognition of Vitamin A Capsules Increase During the Campaign?**

Overall, as can be seen in Figure 4, awareness of the term "Vitamin A capsule" increased significantly among mothers in the intervention regency, from 34 percent in 1988 to 47.8 percent in 1989

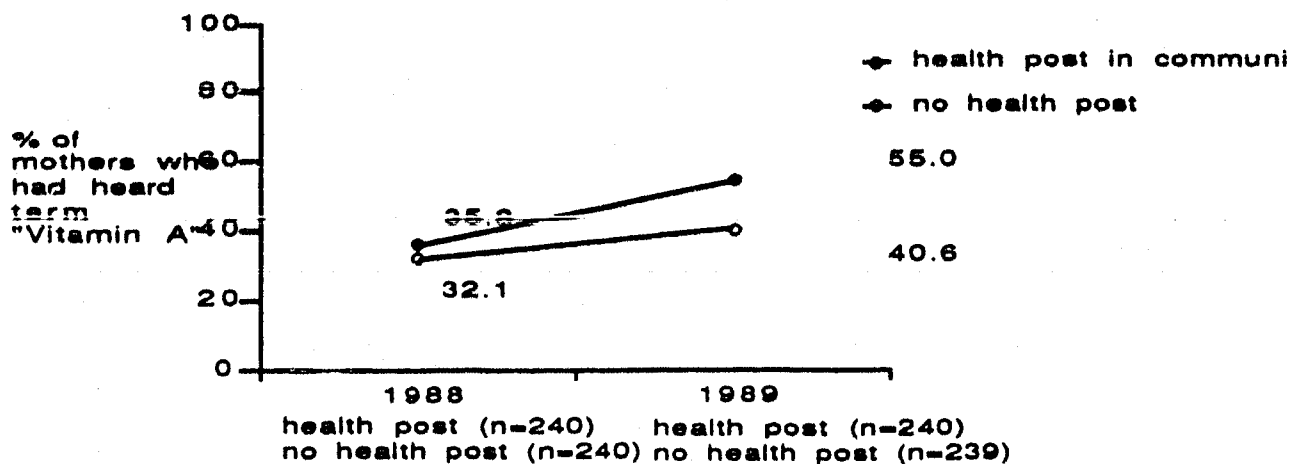
Figure 4  
Awareness of the Term "Vitamin A Capsule" --  
Both Regencies



( $p < .0001$ ). Mothers in the control regency showed no significant change in having heard of Vitamin A capsules (48.3 percent in 1988 and 44.2 percent in 1989).

The increase in awareness is seen primarily in communities with a health post, where having heard of Vitamin A capsules increased from 35.8 percent in 1988 to 55 percent in 1989 (significant at  $p < .0001$ , see Figure 5). Although mothers with no health post in the community also showed an increase (from 32.1 percent to 40.6 percent), this difference was not statistically significant.

Figure 5  
Awareness of the Term "Vitamin A capsule"  
by whether there was a Health Post in the Community --  
Intervention Regency



A second measure of awareness of Vitamin A capsules is whether the mothers could point to the correct capsules when shown or recognize the capsules when they were pointed out to them. High-dose Vitamin A capsules are quite distinctive, with a tip or nipple which can be snipped off so that the contents can be squirted into a child's mouth.

Women in the sample were shown a card with four capsules -- two Vitamin A capsules that had been distributed in the last year (one yellow and the other brown and slightly smaller), and two capsules that were not Vitamin A (one blue and white and the other brown and orange). Recognition of at least one of the Vitamin A capsules increased significantly (at  $p < .0001$ ) in the intervention regency (see Table 4). However there was also a large increase in the control area, which suggests that the change in the intervention community was due to other factors besides the intervention itself.

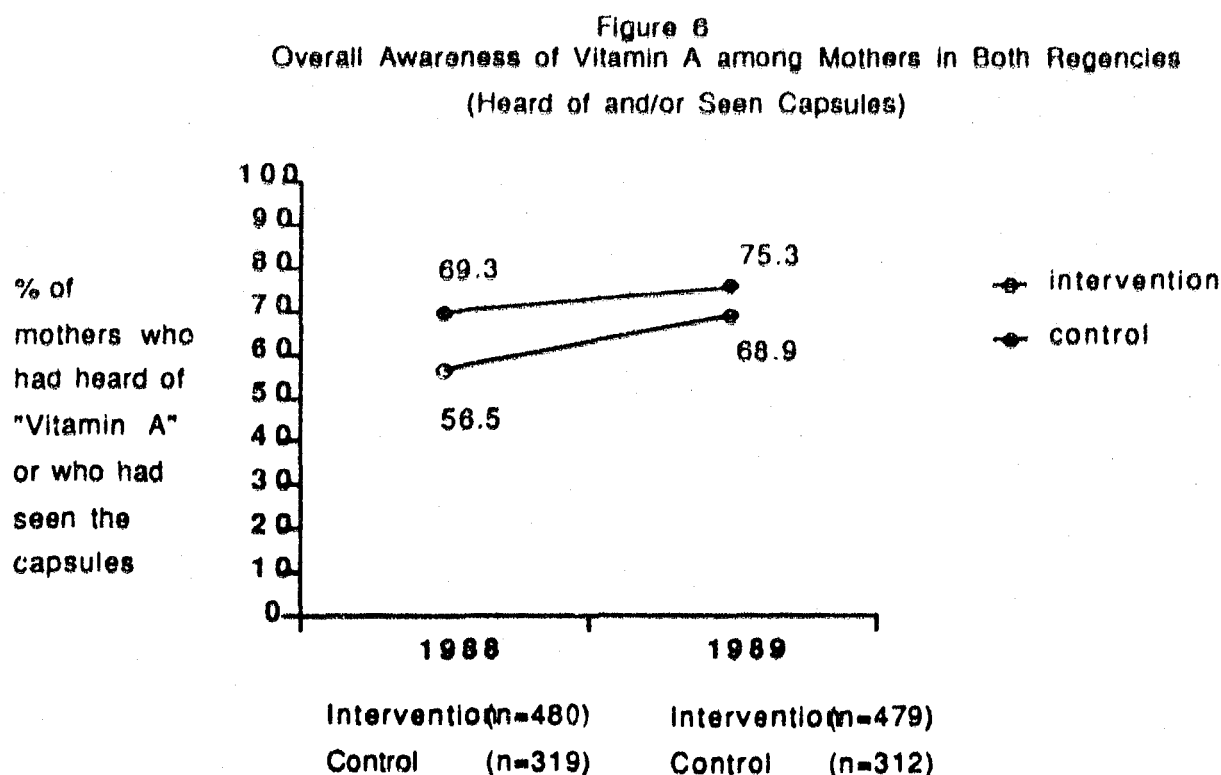
**Table 4**  
**Recognition of Vitamin A Capsules**

	Intervention Regency*		Control Regency*	
	1988	1989	1988	1989
Pointed to both Vitamin A capsules on card	8.5	6.7	7.2	9.3
Pointed to one Vitamin A capsule	8.8	30.3	10.3	28.5
Recognized when shown	26.7	25.7	23.8	36.2
Never heard of/ never seen	56.0	37.4	58.6	26.0
	n=480	n=479	n=319	n=312

\* Differences between 1988 and 1989 figures are significant at  $p < .0001$ .

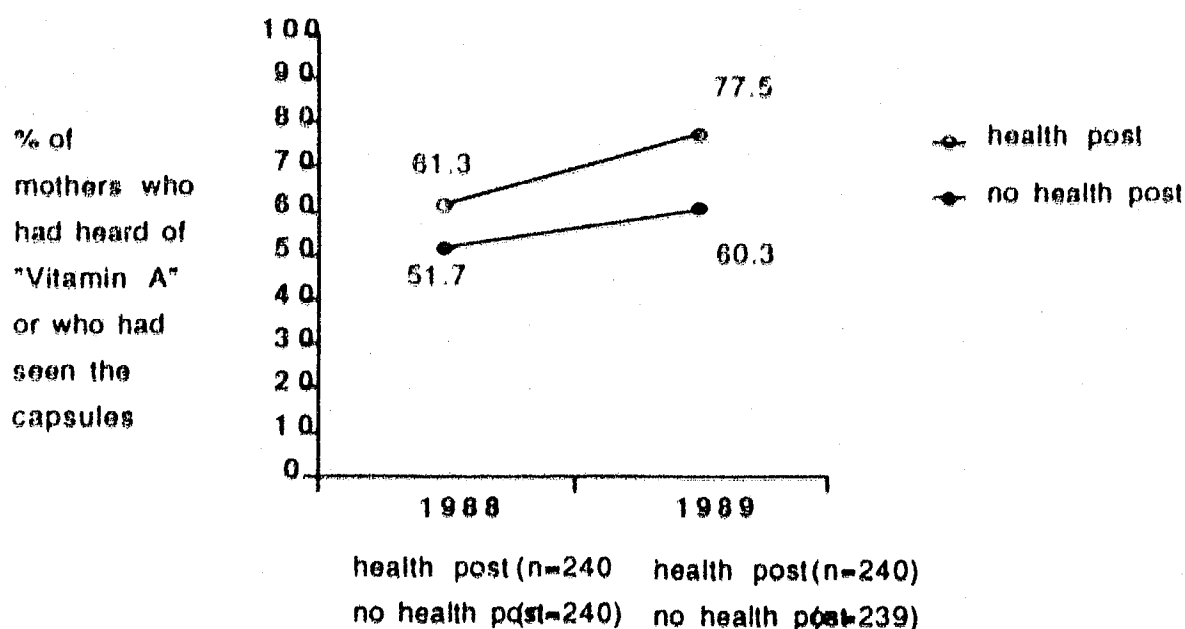
There was also a significant increase in capsule recognition in communities both with and without a health post. In the intervention regency, capsule recognition more than doubled (increase significant at  $p < .0001$ ) in communities with and without a health post. Among mothers in intervention communities with a health post, ability to point to at least one correct capsule increased from 20.9 percent of mothers in 1988 to 43.8 percent in 1989. In intervention communities without a health post, recognition increased from 13.7 percent of mothers in 1988 to 30.1 percent in 1989. Recognition of the capsules also increased significantly in control communities with a health post (from 17.3 percent of mothers in 1988 to 36.8 percent in 1989).

We combined whether a mother had heard of Vitamin A or recognized the capsules when they were shown to her into a single measure of awareness. Figure 6 shows a significant increase (at  $p < .0001$ ) in the percentage of mothers who had heard of or seen the capsules in the intervention regency from 57 percent in 1988 to 69 percent in 1989. The increase in the control area was not statistically significant ( $p < .11$ ).



The increase in awareness in the intervention regency was much larger in communities with a health post than in communities without a health post (see Figure 7). In communities with a health post, awareness increased from 61 percent to 78 percent (significant at  $p < .0002$ ). In communities without a health post, awareness increased from 52 percent to 60 percent (marginally significant at  $p < .08$ ). There was no significant change in the control area in communities with or without a health post.

Figure 7  
Awareness of Vitamin A Capsules  
for Mothers in Communities with and without a Health Post



Overall, awareness of Vitamin A had been higher in the control area at the start of this study. This may be due to greater access to health posts in the control area, or perhaps the health post system in the control area was more active or better developed than that in the intervention. However, after the second and third Vitamin A campaigns in the intervention area, awareness of Vitamin A had increased among intervention mothers to the same levels as those in the control area.

In summary, we found an increase in having heard the term "Vitamin A capsule" and in overall awareness of the capsules which can be attributed to the ROVITA/HEALTHCOM activities. No significant increases in awareness were seen in the control area. Recognition of the capsules increased in both the intervention areas (communities with and without health posts) and the control area.

The analyses up to now have shown significant increases in awareness and coverage of Vitamin A in the intervention area. We now examine whether these changes can be attributed to the communication activities of the project.

### Did Mothers Learn about Vitamin A?

The radio spots and banners had several specific messages: Vitamin A is given every February and August, to children under five, at the health post, it is free, it is for healthy eyes, it can be given to a child whether he is sick or well at the time, it keeps children healthy. In two radio spots, a mother who didn't know where her health post was, was told to ask a neighbor.

In the survey, mothers were asked about when and where a child can receive Vitamin A, the age at which children should receive Vitamin A, whether Vitamin A is for healthy or sick children or both, and about the benefits of Vitamin A. The results can be seen in Table 5.

Overall, the figures show only a small change in knowledge. Two of the most prominent messages in the radio spots were to get Vitamin A every February and August at the health post. In the intervention regency, there was a significant increase in correct knowledge about where to get Vitamin A between 1988 and 1989. However knowledge about where to get Vitamin A also increased significantly in the control area, and was higher at both times than in the intervention regency. This may be partly a reflection of the larger number of health posts in the control area, but also suggests that some kind of publicity about the health posts or the distribution was being carried out in the control area.<sup>14</sup>

Knowledge about when to get capsules showed no change in either regency, although knowledge was significantly higher in the intervention area (17 percent of mothers knew to get capsules in February or August in the intervention regency, compared to six percent in the control area). A second question was added to the 1989 questionnaire, asking how many times a year a child needed to get a capsule. Seventeen percent of the mothers in the intervention area knew the correct answer, and 13 percent in the control area. In the intervention area, 55 percent of the mothers who gave the correct answer about the months capsules are available also knew how many times a year a child should receive a capsule. Forty-five percent of the mothers knew only one of the correct responses -- the month to get Vitamin A or the number of times a year capsules are given.

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<sup>14</sup>One possible influence is a World Bank-sponsored program to increase use of the health posts which was being carried out at the same time as the ROVITA activities. The program rotated its messages throughout the year to cover various health post activities, including immunization, oral rehydration, and Vitamin A. There may be other health department programs also.

**Table 5**  
**Knowledge about Vitamin A**  
**(All Mothers)<sup>15</sup>**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Vitamin A is given in February, August, or both	16.5	17.1	6.3	6.4
Vitamin A is given twice a year or every six months	--	16.9	--	12.8
Vitamin A can be obtained				
At the health post	28.5	38.8*	40.8	58.0*
From a volunteer	3.3	6.7	.9	2.2
Both	1.3	5.4	2.5	4.2
Vitamin A is for children between 1 and 5 years	**	20.6	**	27.1
Vitamin A is for a healthy or sick child	18.3	23.0	28.5	21.2***
Number of benefits named				
One	32.1	43.0****	48.0	53.5
Two or more	5.2	4.2	4.7	5.8
None/never heard	62.7	52.8	47.3	40.7
	n=480	n=479	n=319	n=312

\*Differences between 1988 and 1989 figures significant at  $p < .0001$ .

\*\*Figures are not available for 1988 because of unexplained errors.

\*\*\*Difference between 1988 and 1989 significant at  $p < .04$ .

\*\*\*\* Difference between 1988 and 1989 significant at  $p > .002$ .

There was a significant increase in mothers' ability to name at least one benefit of Vitamin A in the intervention regency, but not in the control area. In 1988, 37 percent of mothers in the intervention area could name at least one benefit, increasing to 47 percent in 1989. Knowledge that Vitamin A can be given to a child whether he/she is healthy or sick was essentially unchanged in the intervention area (the change from 18 to 23 percent was not statistically significant), but decreased significantly in the control area from 29 to 21 percent of mothers.

<sup>15</sup>Mothers who were not aware of Vitamin A (had never heard of Vitamin A and did not recognize the capsules when shown) were coded here as having incorrect knowledge.

Mothers were asked at what age children should be given Vitamin A. Only the figures for 1989 can be reported.<sup>16</sup> Twenty-one percent of the mothers in the intervention area knew that Vitamin A was for children between one and five years old.

On the whole, the majority of mothers in the sample didn't know some of the basic information about Vitamin A -- where and when to get capsules, the ages at which children should get Vitamin A, and whether only a healthy or only a sick child should be given a capsule. There is some evidence of a slight improvement in knowledge during the year of activities between the two surveys, but it is not clear that the changes are due to the communication campaigns. It is also not known how large the changes in knowledge would have been between a true baseline measure (before communication activities in July and August 1988) and the follow-up survey in 1989.

Next we will look at whether mothers were exposed to the messages of the campaign, through mass media and interpersonal channels.

### **Were Mothers Exposed to the Campaign?**

#### *Mass Media Channels*

There was a significant increase in the percentage of mothers in the intervention area who had ever heard about Vitamin A on the radio but, overall, exposure to the radio messages and the banners was quite low (see Table 6). Between 1988 and 1989, the percentage of mothers saying they had ever heard messages about Vitamin A<sup>17</sup> increased from 14 to 21 percent. However, when mothers were asked when they had heard Vitamin A messages, only five percent reported hearing the messages during the campaign (one to two months before). Thus, although over time more and more mothers in the intervention area had heard messages at least once, only a small proportion said they had heard them during the last period they were broadcast. By 1989, 11 percent of the mothers in the intervention area could give the interviewers correct information about the content of the messages and five percent could name one of the children in the

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<sup>16</sup>The question about how often a child should be given a capsule was only asked in 1989, not in 1988. The responses from the 1988 survey to the question about ages at which capsules are required were uninterpretable and could not be compared to the 1989 data.

<sup>17</sup>The questions about exposure to messages about Vitamin A and knowledge about the capsules were only asked of mothers who had heard the term "Vitamin A" or who said they had seen the capsules when they were pointed out by the interviewer. When we report percentages for all mothers, this group are considered to have not been exposed to the message or to have no knowledge.

messages. These numbers may be slightly lower than the true figures because the messages had not been broadcast for over a month, but, overall, exposure to the radio was quite low.

**Table 6**  
**Exposure to the Campaign**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Ever heard a radio message about Vitamin A	13.8	21.1*	8.8	10.3
Heard message during campaign	5.4	4.8	.3	1.9
Can name child in radio messages	---	4.6	---	0
Number of correct items remembered from messages				
One	5.8	8.6	3.8	4.2
Two or more	2.1	2.5	.3	.6
None/never heard	92.1	88.9	95.9	95.2
Ever saw a banner about Vitamin A	8.3	8.9	1.9	1.9
Saw Vitamin A banner during campaign	6.0	4.6	.6	1.0
Number of correct items remembered from banner				
One	2.5	3.8	.3	0
Two or more	.6	1.7	0	0
None/never seen	96.9	94.6	99.7	100
	(n=480)	(n=479)	(n=319)	(n=312)

Nine percent of all mothers in the intervention area said they had ever seen a banner about Vitamin A and five percent reported seeing the banners during the last campaign. Five percent of the mothers could correctly remember at least one of the banner messages.

There is some evidence that mothers in the control area were exposed to the radio messages. In 1989, ten percent said they had ever heard Vitamin A messages on the radio. However, only 2 percent said they had heard these messages during the campaign, and none could name either of the children in the messages. Five percent could name at least one item in the content of the radio messages. There are several possible explanations for this. It may be that the radio signals reached part of the control area, or that these women had traveled to one of the intervention areas during the campaign and heard the messages. However, another possibility is that there were some broadcasts on control regency stations about Vitamin capsules.<sup>18</sup> Very few (2 percent) reported that they had ever seen Vitamin A banners.

The low exposure to the radio messages and the banners in the intervention area may be partly due to low access to these channels. In 1989, forty-six percent of the mothers in the intervention area said there was a radio in their household. Only 32.1 percent of all mothers said they listened to the radio every day, which potentially would give them the greatest opportunity to hear the messages. Forty-five percent never listened or listened less than one day a week, 18.3 percent said they listened from one to three days a week, and 4.6 percent listened from four to six days a week.

However, daily listening did not assure that a woman would hear the campaign messages. Of the women who said they listened to the radio every day, only 32 percent said they had heard messages about Vitamin A on the radio. Actually, number of days a week of listening was less important than listening at all. Of mothers who said they listened to the radio four to seven days a week, 33 percent said they had heard Vitamin A messages on the radio. This is not significantly greater than for mothers who listened only one to three days a week, of whom 28 percent said they had ever heard the radio messages. Nine percent of mothers who said they listened to the radio less than once a week said they had heard messages.

The low rate for frequent listeners may be because the mothers weren't listening at the time the messages were being broadcast or because few mothers listened to the radio for more than an hour a day. To estimate how much time in one day women listened to the radio, we asked how long they had listened the previous day. Fifty-seven percent had not listened that day, seven percent had listened fifteen minutes or less, eight percent had listened half an hour, 12 percent had listened 45 minutes to an hour, and 14 percent had listened for more than one hour. If women's limited listening each day didn't take place at the times the messages were broadcast, there is little chance of them hearing them.

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<sup>18</sup>In March 1989, all regency health department heads were given cassettes of messages to help promote the health posts. One of these spots was about Vitamin A distribution months.

One possible solution might be to increase the number of spots broadcast in a day or to broadcast them during the heaviest listening times. However, this still would not reach the large group of mothers who do not listen to the radio at all. For these mothers, it will be necessary to use other communication channels to tell them about the distribution months.

Access to the banners may also explain the low levels of exposure seen in the data. At the start of the Vitamin A program, one banner was sent to each village chief with instructions to display it in a prominent place. In addition, banners were sent to the provincial health centers for display. Twenty-three percent of the mothers in the sample said that they had been to the health center during the time that the banner might have been displayed. We can't tell how many mothers might have had the opportunity to see the banners sent to the village chiefs because we don't know where the chiefs displayed them. However, the villages in Central Java are quite large, and it is possible that a large number of mothers would not see a banner displayed in a single location in the village. Although monitoring indicated that the banners were being displayed in all villages, the monitoring research also found that mothers who didn't see the banners said they rarely leave home or go to the village center.<sup>19</sup> This indicates a need for additional sources of information to best reach mothers in Central Java.

#### *Interpersonal Channels*

The ROVITA project trained paid health workers from the 38 provincial health centers in Demak and Jepara and volunteer health workers from the health posts in all the villages. The volunteers are considered the primary interpersonal source of information for villagers on Vitamin A and on the distribution program.

Interpersonal channels were the most frequent sources of information listed by the mothers in our sample. As can be seen in Table 7, the health posts were the most frequently named source of information about Vitamin A among mothers who had heard of Vitamin A. Other major sources of information were health centers, health volunteers (who staff the health posts) and people who are possibly health volunteers (head of the neighborhood, members of the women's organization).

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<sup>19</sup>August 1988 monitoring report.

**Table 7**  
**Source of Information among Mothers Who Had Heard of Vitamin A**  
**(More than one response was possible)**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Health post	44.2	55.5*	53.2	74.6**
Health volunteer	9.2	17.0*	5.8	14.5*
Possible volunteer	22.1	22.3	15.6	19.6
Village staff	8.0	10.0	3.9	4.3
Health center	33.7	37.1	37.7	26.8
Private doctor	1.2	7.9*	2.6	2.2
Nurse/midwife	3.7	5.7	8.4	8.0
Radio	9.2	8.3	5.8	4.3
Banner	1.2	.4	0	.7
Shop/pharmacy	1.2	1.7	3.9	4.3
Textbook	1.8	.2	7.8	.3**
Television	2.5	3.5	2.6	3.6

n=163 n=229 n=154 n=138

\*Differences between 1988 and 1989 significant at  $p < .05$ .

\*\*1988-1989 differences significant at  $p < .001$ .

neighbors, friends, teachers). The mass media (radio, banners and television) were less frequently named as a source for hearing about Vitamin A.

Mothers in communities both with or without a health post showed no significant difference in their sources for hearing about Vitamin A. In the intervention regency, 59 percent of mothers in communities with a health post who recognized the term "Vitamin A capsule" said they had heard about Vitamin A from a health post, compared to 51 percent of mothers in communities without a health post ( $p < .31$ ). Because of the organization of the capsule distribution through the health posts, these posts were an important source of information about Vitamin A for all mothers. Mothers who lived in communities without a health post and who had to go to a health post in another neighborhood were likely to be disadvantaged in terms of access to information.

There was a significant increase in having heard about Vitamin A from a health post or a health volunteer in both the intervention and the control regencies. This suggests that health volunteers may have been more actively involved during the time between the two surveys in promoting Vitamin A in both geographic areas, not only in the intervention regency. Some activities related to the project did take place in the control area. One copy of the new Vitamin A manual was distributed to each village in all of Central Java between October and December 1988, including the control regency.

We then looked at the levels of contact mothers in the sample had with the different interpersonal channels, and their potential exposure to information about Vitamin A. Table 8 shows the details.

**Table 8**  
**Contact With Interpersonal Sources of Information**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Has been to health center	88.8	92.3	89.7	86.4
Has been to health center in Aug. or Sept.	22.1	21.6	20.7	23.0
Has ever been to health post	76.7	78.4	86.2	90.3
Has ever met with health volunteer	70.2	78.0*	89.7	90.0
Has been to health post or volunteer in Aug. or Sept.	21.3	25.9	28.5	27.8
Number of times has been to health post in last 5-6 mos**				
None	---	21.6	---	9.7
1-2	---	35.6	---	35.3
3-4	---	20.4	---	21.0
5-7	---	19.5	---	31.7
Don't know	---	1.0	---	2.3
Someone has come to house to give capsules (shown)	---	30.9	---	18.3
	n=480	n=482	n=319	n=309

\*Difference between 1988 and 1989 significant at  $p < .05$ .

\*\*Question asked in 1989 only.

Table 7 indicates that the health posts and health volunteers have been important sources of awareness of Vitamin A for mothers in the sample. However, as can be seen in Table 8, although a large majority of mothers have had contact at least once with the health center, health post, or volunteer, the majority did not go to these sources during the months when they would have been most likely to hear about the Vitamin A distribution. Approximately 25 percent of women in the intervention area had been to either a health center or a health post or volunteer during the campaign period.

Over half the mothers in the intervention regency did not regularly attend the monthly health posts: fifty-seven percent had been to the health post only once or twice in the last 5-6 months or had not been at all. Twenty percent reported monthly visits and another 20 percent had been approximately every other month.

Low regular attendance at the health post is related to the age of the mother's youngest child. We found that mothers whose youngest child was 13 to 24 months old had the largest number of visits to the health post in the past 5-6 months (with a mean number of 2.7 visits). Mothers with children one year old or less and those with a child 25 to 36 months old averaged 2.3 visits to the health post, those with children between three and four years old averaged 2.1 visits, and those with children four years old went to the health post an average of 1.3 times. Overall, mothers with older children were less likely to go to the health post frequently and were potentially less likely to get information from the posts about Vitamin A. However, a large percentage of mothers with children one year or under (those for whom the weighing and immunization services of the health post are most important) also did not go to the health post regularly.

The problem of low regular attendance at the health posts was addressed by the ROVITA staff in a study carried out in March 1990. Mothers who had not been to a health post in the past three months were asked why they had not gone to a health post. The most frequent responses given were that the mother was too busy, she didn't know the time or day of the health post, and/or her child was healthy. The first two reasons are related to the temporary nature of the health posts and their relative infrequency (one morning a month).

The findings suggest that the health posts and health volunteers should not be the sole channel for teaching mothers about Vitamin A. They will reach some of the mothers, but not the majority. Workers in health centers may also be able to publicize the Vitamin A distributions, but, again, they only reach a minority of the population during the distribution months.

Other possible sources of information are the village leaders. Indonesian villages and cities are divided into administrative units or communities and, further, into neighborhoods. Each of these administrative units

has a head, who reports to the official at the next level above. Each village or section of a city has a head and also a village staff. Mothers indicated that they expect information on the health posts to come from these sources.

We asked all mothers in the intervention area where one could find out the location of the monthly health post and how they would know when the health post would be open. As can be seen in Table 9, mothers said they would rely quite heavily on the village administration and staff for information about the health post location and scheduling. Mothers in communities with a health post were significantly more likely than those in communities without a health post to say they could find out where the post was from a volunteer, or to say they would know about the day of the health post from the schedule or a volunteer (not surprising findings if we consider that health posts are staffed by the health volunteers). Mothers in communities with or without a health post were equally likely to report the village staff as a source information on where they could find a post. There was no significant difference between mothers living in communities with and without a posyandu in reporting that they would know when the health post was open from the village staff or from a loudspeaker announcement.

**Table 9**  
**Frequency Distribution of Where One Could**  
**Find out the Location and Time of the Health Post --**  
**Intervention Regency - 1989**

	<u>Location</u>	<u>Time</u> <u>Open</u>
Friend/Relative	7.5	6.0
Health Volunteer	15.7	13.9
Head of Neighborhood	11.6	6.4
Head of Village	3.9	2.3
Village Staff ( <i>Perangkat Desa</i> )	71.4	67.7
Health Post Has a Schedule	na	8.7
Announcement Through Loudspeaker	0	23.8
Don't know	8.1	0
	n=483	n=483

## Summary

Access and exposure to the channels used by the Vitamin A program (radio, banners, and health volunteers) are issues that need to be addressed further. Only 21 percent of mothers in the intervention area said they

had ever heard radio messages about Vitamin A and nine percent said they had ever seen a banner. Less than half had a radio in their household and just over one-third said they listened frequently (four to seven days a week).

The majority of mothers who had heard of Vitamin A named the health post or health volunteers as their source of information (whether or not they had a health post in their community). However, contact with these facilities or health workers is not frequent or regular for the majority of mothers. In 1989, approximately one-quarter of mothers reported having been to a health center and one-quarter said they had been to a health post during the distribution or in the month before. They could have been informed about the Vitamin A distribution at this time, but we don't know if this is the case. Forty percent of mothers reported visiting the health post approximately every one or two months.

Overall, approximately three quarters of mothers in the intervention potentially could have been reached with messages about Vitamin A through the radio, health center, or health post or volunteer (if they listened to the radio at the time the messages were broadcast or if the health worker told them about the distribution during their visit). One quarter of the mothers had both not listened to the radio more than three times a week and nor been to the health center or health post in the last two months. It is unlikely this group would be reached by the channels used in the campaign.

The data suggest that, to increase exposure to information about Vitamin A and the distribution, the program will have to find other channels to disseminate information, increase the frequency of radio messages and interpersonal publicity, or both. One possible avenue for disseminating information about the Vitamin A distribution, particularly about the time and location in each area, is the village leadership hierarchy.

### **Is Vitamin A Coverage Associated With Exposure to the Campaign?**

As discussed in an earlier section of this report, we found that Vitamin A coverage increased in the intervention area during the year covered by the evaluation. We then wanted to know if mothers who had been exposed to the mass media or interpersonal channels used by the project were more likely to have taken a child for Vitamin A during the campaign than mothers without campaign exposure.

We found that a mother's exposure to the radio messages and the banners was not significantly associated with having obtained Vitamin A for her eligible child during the 1989 distribution period. However,

exposure to the health system was related to coverage. Other factors which were associated with Vitamin A coverage were: having a health post in the community, distance to the health post, level of education of the mother, and age of the child.

We looked at the relationship between Vitamin A coverage and exposure to the campaign, controlling for other factors that could explain any association (socioeconomic status, isolation of the village, access to the health system, and age of the child). We carried out logistic regression analyses using coverage of the youngest eligible child during the campaign as the dependent variable. Exposure to the health system was measured by whether the mother's oldest child under five years old had been immunized.<sup>20</sup> Exposure to the Vitamin A banner was measured by whether the mother said she had seen a banner. Nine percent of the mothers in the intervention regency said they had seen the banner.

The radio exposure measure is a scale ranging from 0 to 5 and is composed of the responses to questions about having a working radio, listening four or more days a week, having heard messages in the last two weeks, naming at least one specific topic of the messages, and remembering the name of the child in the messages (see Table 10).<sup>21</sup>

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<sup>20</sup>The choice of a variable to measure exposure to the health system was limited in that mothers had to go to a health post or be visited by a health volunteer to get a Vitamin A capsule. If we used having been to a health post or volunteer in the last two months, or frequency of visits to the health post, the independent variable would have been highly confounded with the dependent variable. Immunization of the oldest child under five years is, at best, a crude measure of exposure to interpersonal sources, but was the best that could be found.

<sup>21</sup>The scale of radio exposure is technically a measure of exposure to campaign messages about diarrhea (has heard messages about diarrhea in the last two weeks, can name one specific topic in these messages, and can name the child in the diarrhea messages). There are two reasons for the use of exposure to diarrhea rather than Vitamin A messages. First, the interviews took place during the broadcast of the diarrhea messages and at least one month after the end of the Vitamin A campaign. Measuring exposure to current messages would give us a measure that matched more closely the situation during the Vitamin A distribution. Second, mothers who had never heard of Vitamin A or seen the capsules were not asked any questions about exposure to Vitamin A messages. We wanted a measure of radio exposure that would include all the mothers in the sample. We compared exposure to Vitamin A messages to exposure to diarrhea message and found them to be highly correlated.

**Table 10**  
**Frequency Distribution of Radio Exposure**  
**Intervention Regency - 1989**

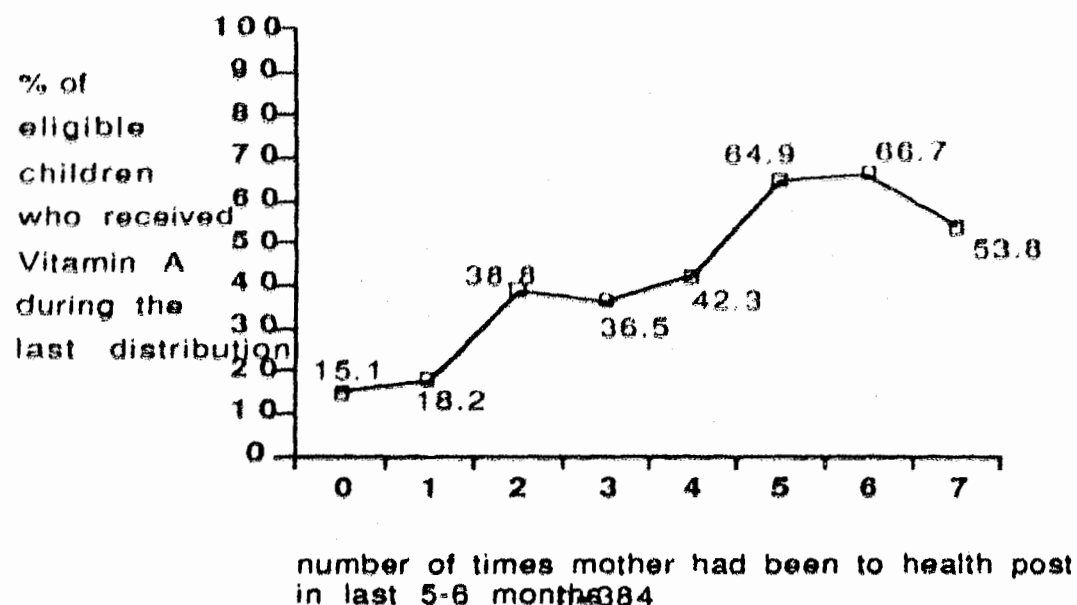
Score of Radio Exposure Measure	Percent
0	47.2
1	19.0
2	16.5
3	7.3
4	6.3
5	3.8
n=479	

The analyses showed that, after controlling for socioeconomic status, village isolation, and access to a health post, exposure to the radio messages and the banners was not significantly associated with Vitamin A coverage. However, contact with the health system was significantly related to coverage. Of mothers who had taken a child for immunization, forty percent had taken their youngest eligible child for Vitamin A during the campaign, compared to 12 percent of those whose child had not been immunized. This may be because they had made a habit of going to the health post or because they were more likely to have heard about the distribution.

Frequency of health post attendance was also a significant factor in Vitamin A coverage in the intervention area. Among mothers who had ever been to a health post, those who attended the post more frequently were significantly more likely to have a child who received Vitamin A during the campaign than those who attended less frequently.<sup>22</sup> Figure 8 shows that 54 to 67 percent of mothers who had been to the health post five to seven times in the last five to six months had Vitamin A coverage for their child compared to 37 to 42 percent of those who had been two to four times and 15 to 18 percent of those who had been only once or not at all.

<sup>22</sup>The logistic regression analyses were redone using only mothers who had ever been to the health post and adding frequency of attendance at the health post to the list of independent variables.

**Figure 8**  
**Vitamin A Coverage during the Campaign by Attendance at Health Post**  
**among Mothers who had ever been to the Health Post --**  
**Intervention Regency, 1989**



The analyses also identified a number of other factors associated with Vitamin A coverage during the campaign.

Children living in communities with a health post were more likely to have received Vitamin A than those in communities without a health post. In addition, mothers who lived farther from the health post were less likely to have obtained Vitamin A for their child than those living closer to the health post.

Mothers with more education were more likely to have taken their child for Vitamin A during the campaign than mothers with less education.

Among children eligible for Vitamin A (one to five years old), younger children were more likely to have received a capsule during the campaign than older children.

### *Access to a Health Post*

Children living in a community with a health post were more likely to have received a Vitamin A capsule during the campaign than children in communities without a health post. This topic has been covered extensively in an earlier part of this report and will not be repeated here.

Distance to a health post was also a significant factor -- children living closer to a health post (whether in their own community or not) were more likely to have received Vitamin A during the last distribution. Of greatest importance is the interaction between distance to the health post and having a health post in the community. Table 11 shows that, by far, the largest proportion of Vitamin A coverage was among children living within five minutes of a health post in their community (53 percent). Other children, those more than five minutes from a health post (whether in their community or not) and those in communities with no health post had much lower rates of coverage (24 to 32 percent).

**Table 11**  
**Vitamin A Coverage During the Last Distribution**  
**by Health Post in Community and Distance from Nearest Post --**  
**Intervention Regency - 1989**

Distance from Post	Health Post in Community	
	No	Yes
Five minutes or less	23.8 (n=63)	52.9 (n=87)
Six minutes or more	26.4 (n=144)	31.9 (n=94)

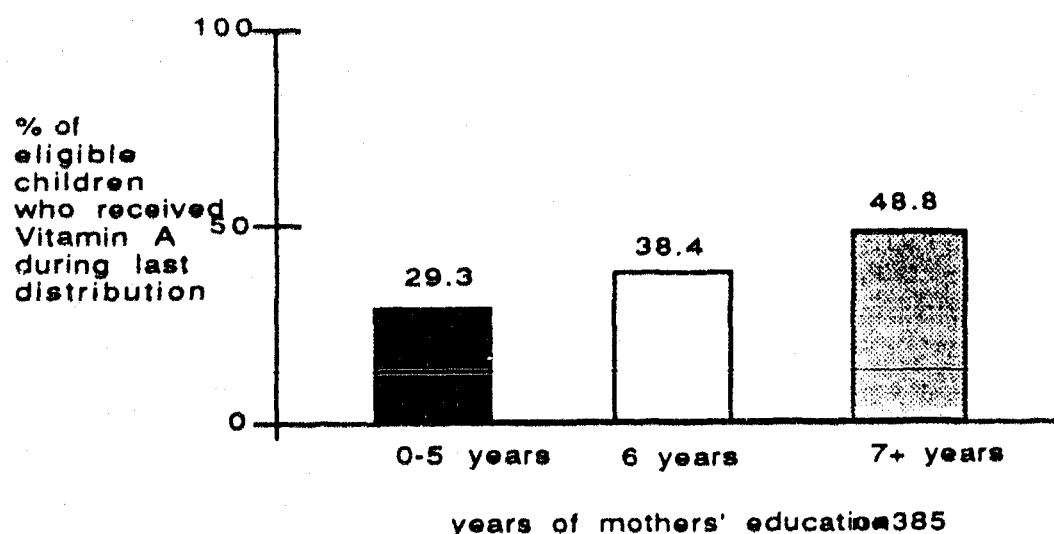
This finding suggests that many mothers may not be getting information about the timing of the health post and the Vitamin A distribution. As noted in Table 9, mothers expected to hear about the day of the health post from the village staff or from loudspeakers. On one visit to a health post in Central Java, an observer noted that the health volunteers and neighborhood leader went door-to-door to inform the mothers of the health post open that day. If the primary means of advertising the presence of the health post is by loudspeaker and personal contact, the number of mothers that can be reached is limited by geography. Those living within a smaller radius of a health post or a loudspeaker are more likely to hear about the health post.

We are not certain about the networks available to reach mothers in Central Java. We did not look at whether the formal village hierarchy was used as a network to inform mothers of the health post or of the Vitamin A distribution. However, a large number of mothers expected to hear about the timing and location of the health post from the village staff. This may be a channel of communication that could efficiently reach a large number of women.

### *Mother's Education*

Controlling for other socioeconomic factors, mass media exposure, and access to a health post, mothers with more education were more likely to have taken their child for Vitamin A during the last distribution. As can be seen in Figure 9, 29 percent of mothers with five years or less of schooling received Vitamin A for their child, compared to 38 percent who had completed primary school, and almost half of those with more than a primary school education. This suggests that special efforts may have to be made to reach children of less educated mothers.

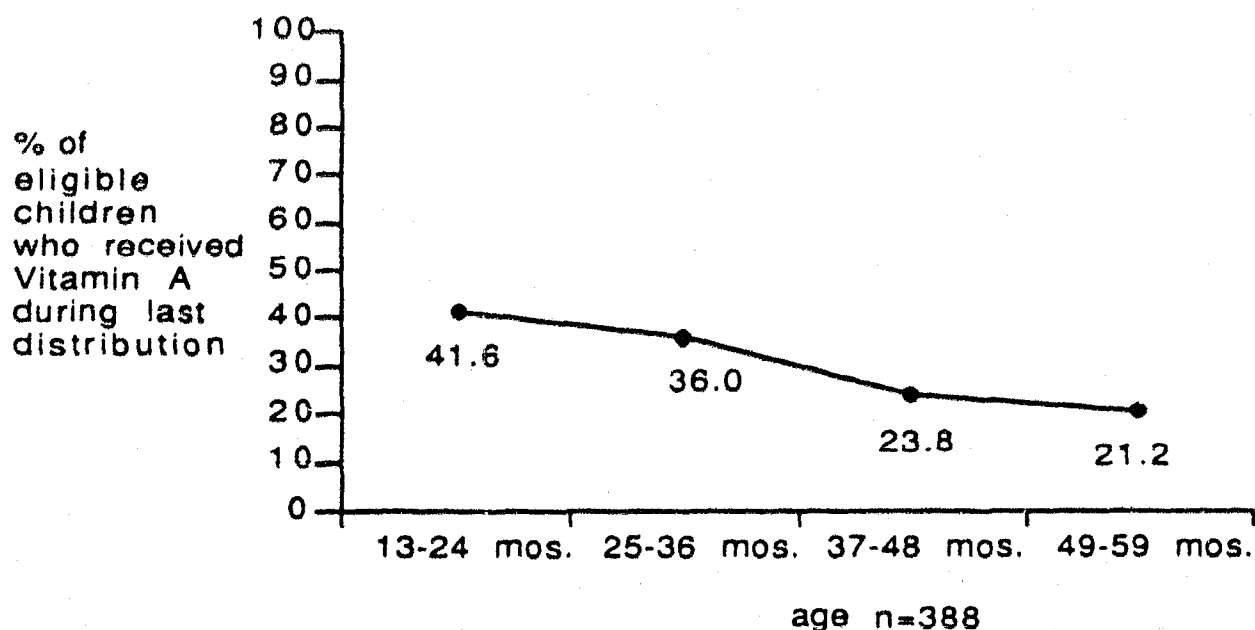
**Figure 9**  
**Vitamin A Coverage during the Campaign by Mothers' Education --**  
**Intervention Regency, 1989**



### *Age of Child*

There is a significant and steady decrease in the Vitamin A coverage as a child ages (see Figure 10). Forty-two percent of children between 13 and 24 months old received Vitamin A during the distribution, compared to 36 percent of children 25 to 36 months old, 24 percent of children 37 to 48 months old and 21 percent of children 49 to 59 months old. This is probably because health posts function primarily as weighing and immunization posts for children under two years old. Mothers are more likely to bring young children to the post and may also think it is not appropriate to bring older children. The most vulnerable children in terms of Vitamin A deficiency are those under three years. The program may want to specifically address how to inform mothers that children over two (and particularly those two to three years old) still need Vitamin A and to motivate them to bring these children to get the capsules.

**Figure 10**  
**Vitamin A coverage during the Campaign by Age of Child --**  
**Intervention Regency, 1989**



### *Improvement in Vitamin A Distribution at the Health Post*

The logistic regression analyses indicate that exposure to the mass media channels used in the project was not associated with Vitamin A coverage among eligible children. Contact with the health system was significantly associated; however, as seen in Table 8, there was no change in the numbers of mothers going to the health post during the distribution period in 1989 compared to 1988. How then can we explain the significant increase in Vitamin A coverage in the intervention communities with health posts?

One possible explanation is that the mothers who went to the health post during the campaign were more likely to get a capsule than they had been before the ROVITA program. We compared Vitamin A coverage rates in 1988 and 1989 for mothers who said they had been to the health post or seen the volunteer during August or September. Thirty-nine percent of the mothers who reported going to the health post during the period of the distribution in 1988 had received a Vitamin A capsule for their eligible child. In 1989, this had increased to 53 percent.<sup>23</sup> The increase is marginally significant (at  $p < .10$ ) because of the small number of cases (84 in 1988 and 101 in 1989). However, it does suggest that there has been an improvement in the Vitamin A distribution system, either from the health centers to the health posts or from the volunteers working at the posts to the children.

### *Conclusion*

Overall, the data suggest the need for the use of more channels of communication or channels that reach larger numbers of mothers, particularly those with less education and those with children over two years old. Exposure to the radio messages and the banner were not related to Vitamin A coverage. Use of the health system was associated with coverage, but health workers are not likely to reach the majority of mothers. More information is needed on the information networks that would best reach the largest number of women.

### **Is Awareness of Vitamin A Associated with Exposure to the Campaign?**

A second question of interest was whether mothers in the intervention area who had been exposed to the campaigns were more likely to be aware of Vitamin A than those who had not. We found that exposure to the radio and having seen the Vitamin A banner were significantly associated with mothers having heard the

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<sup>23</sup>These figures may be low estimates of the actual distribution rates of capsules in the health posts. We are relying on mother's self-report as to when she last went to the health post and when her child received a capsule. It is likely there is some error in matching the two dates. However, the findings do suggest a change.

term, "Vitamin A capsule." Exposure to interpersonal sources, contact with the health system (immunization of oldest child under five years), and contact with the health post in the last 5-6 months were also significantly associated with awareness, but having a health post in the community was not. One other significant factor was mother's education.

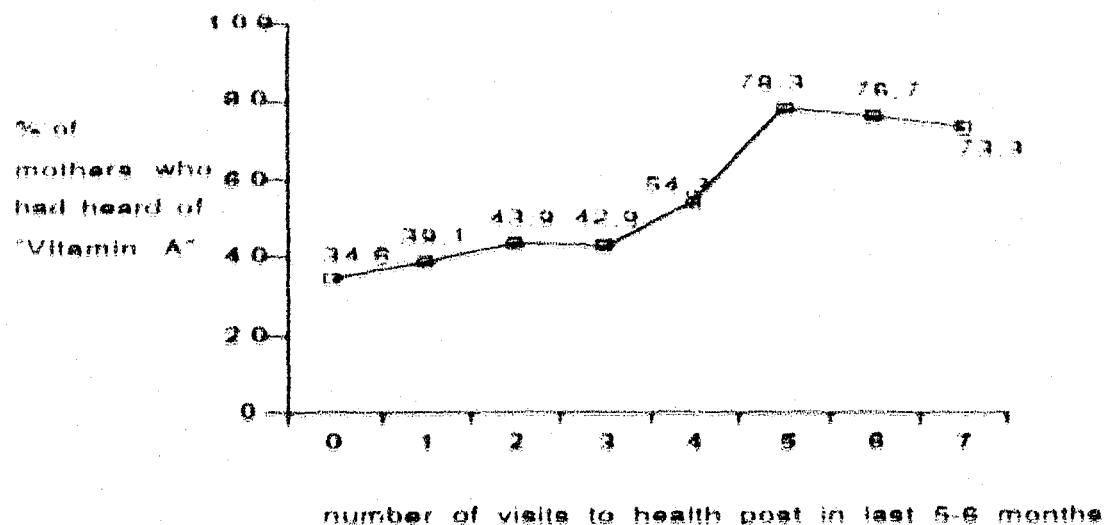
We carried out logistic regression analyses with mother having heard of the term "Vitamin A capsule" as the dependent variable and adding mother's education, family socioeconomic status, village isolation and development, access to and contact with the health system, and exposure to the radio and to the banner as independent variables.

Controlling for all the above factors, we found that mothers who had more exposure to the radio and those who had seen the Vitamin A banners were significantly more likely to have heard about Vitamin A. Approximately two-thirds of mothers with exposure to campaign radio messages had heard of Vitamin A, compared to half of the mothers with some radio exposure, and only one-third with no radio exposure. Ninety-three percent of mothers who had seen a banner said they had heard of the term, "Vitamin A capsule," compared to 44 percent who had not seen a banner.

Mothers with greater exposure to the health system were more likely to have heard of Vitamin A than those with less exposure to the health system. Mother's exposure to health workers was measured in two ways, both of which were significantly associated with having heard of Vitamin A. We found that 58 percent of mothers who had taken their oldest child under five for vaccination had heard of Vitamin A, compared to 23 percent who had not taken the child for immunization. This may be a crude measure of attendance at either a health center or a health post.

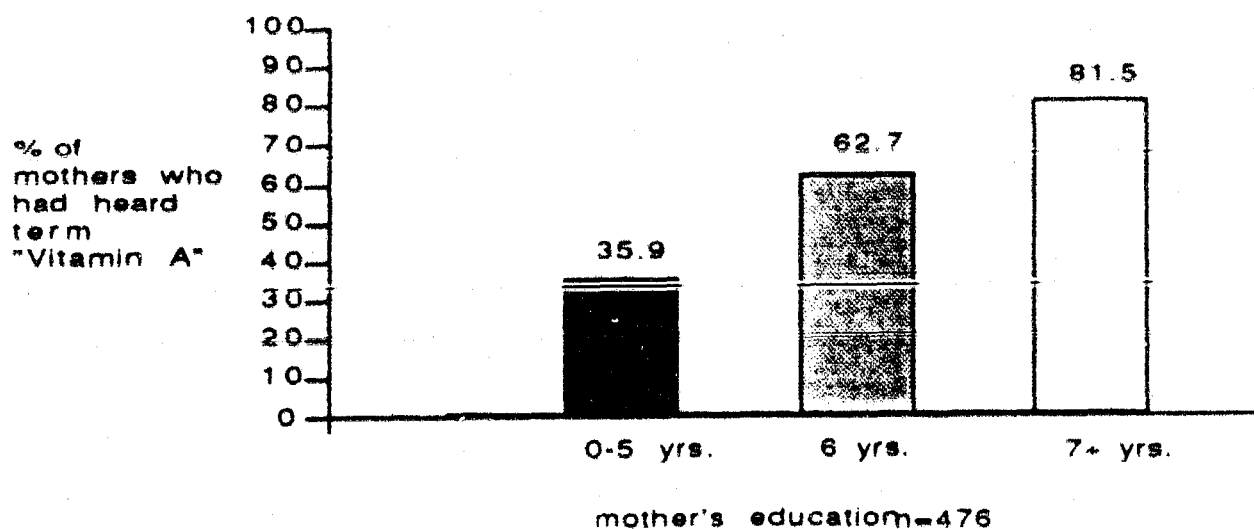
Figure 11 shows that mothers who had attended the health post more frequently in the last five to six months were more likely to have heard of Vitamin A than those attending less often. Approximately three quarters of the women who attended the health post regularly (5 or more times) had heard of Vitamin A, compared to mothers who didn't attend at all (35 percent aware of Vitamin A) and those who attended every other month or less often (39 to 44 percent).

Figure 11  
Awareness of Vitamin A and Health Post Exposure



The other variable in the equation that was significantly associated with awareness was mother's education. Mothers with more education were more likely to have heard of Vitamin A than mothers with less education (see Figure 12). Thirty-six percent of mothers with no schooling through five years of school had heard of Vitamin A, compared to 63 percent of mothers who had completed primary school, and 82 percent of mothers with more than a primary school education. Again, special efforts may have to be made to reach and inform less educated mothers about Vitamin A.

Figure 12  
Awareness of Vitamin A by Mothers' Education --  
Demak, 1989



We did the same analyses using the broader measure of awareness of Vitamin A (mother has heard of Vitamin A or has seen the capsules). The results were essentially the same as those for Vitamin A coverage. This is likely due to the fact that mothers who have seen the capsules are also those who have received a capsule for their child, making this measure of awareness similar to the measure of coverage.

In summary, exposure to all the communication channels used by the project (radio, banners, and interpersonal channels) was significantly associated with awareness of Vitamin A. This suggests that radio, visual materials and health workers can play a role in increasing awareness of Vitamin A in Central Java. However, the impact of these channels will be limited by their reach -- none of them were used by an overwhelming majority of the mothers.

Overall, the study has found that the major constraint to increasing Vitamin A coverage is access -- to services and to information. Mass media and interpersonal communication channels can provide information. It is important to continue to use a coordinated multi-channel approach and to explore the use of other channels that will reach more women and that will be able to provide mothers with specific information about the time and location of the Vitamin A distribution in their local area.

## **THE DIARRHEAL DISEASE PROGRAM IN CENTRAL JAVA**

Diarrheal diseases are a leading cause of infant mortality in Central Java and throughout Indonesia. Children become debilitated from diarrhea and may die from causes such as dehydration, respiratory infections, and malnutrition. Oral rehydration therapy (ORT) can prevent and cure dehydration resulting from diarrhea. ORT consists of continuing breastfeeding, continuing feeding, giving fluids, and giving oral rehydration solution (ORS), made by mixing in water a packet containing sodium, glucose, and electrolytes, or measured amounts of salt and sugar. Although the child's diarrhea may persist, ORT applied correctly can keep a child alive while the diarrhea runs its course.

The major goal of the program in Central Java was to increase use of oral rehydration therapy by mothers to treat cases of diarrhea. More specific objectives were to improve mothers' knowledge and behavior related to correct treatment of diarrhea and train them to mix and administer ORS, and to improve volunteer health workers' skill in diarrheal case management and the use of ORS.

## **Communication Materials on Treatment of Diarrhea**

Many of the activities related to the diarrhea component of the ROVITA/HEALTHCOM project in Central Java took place at the same time as the Vitamin A activities. Pre-program research was carried out in mid 1987, and included an ethnographic and audience research study and examination of materials and methods from other projects, in particular the HEALTHCOM project in West Java, which had started earlier and focused only on management of diarrheal disease.

As with the Vitamin A component of the program, the communication strategy for diarrheal disease included the use of health volunteers at the health post or in their neighborhoods, radio broadcasts, and banners. A manual was developed, pretested, and revised for use in the training of volunteer health workers and also for the volunteers to keep for reference. This manual was extensively revised in 1989. The manuals explain in pictures and words the problem of dehydration, signs of increasing severity, the correct use of ORT, including instructions on mixing and administering sugar-salt solution and packet-based ORS, and the need to refer dehydrated children to the health center for further treatment. Several pages from the health volunteer manual on diarrhea are included in Appendix B.

The program taught health center staff to be trainers of the health volunteers. These trainers then trained ten active health volunteers from each village in the two intervention areas in June 1988, covering both diarrheal disease and Vitamin A, and gave a refresher course in September 1988. A second training course on treatment of diarrhea was given in June 1989, and volunteers were given revised diarrhea manuals in December 1989.

The radio messages on diarrhea were developed to be broadcast in three phases, with each phase adding onto the messages of the previous phase. The first phase was broadcast from February-March and in June and July 1989 and focussed on the problem of fluid loss and the importance of giving liquids to children with diarrhea. The second phase was broadcast from September-December 1989 and told mothers to give liquids and to give foods to children during diarrhea. It also included messages about the importance of the volunteer health workers as sources of information. The third phase was carried out from March-May 1990 and added giving Oralit (a packaged oral rehydration solution available in Indonesia) and referring serious cases to the health center to the messages. ~~This phase also included messages praising the volunteers to provide motivation.~~ Messages were broadcast in Javanese and Bahasa Indonesia. Some of the English translations of the diarrhea spots are included in Appendix B.

Diarrhea banners were developed and distributed to health posts in areas with relatively high diarrhea rates. The banners were made of green cloth, 1 1/2 meters long with yellow, white, and red lettering and pictures. They told mothers, if their child has beginning diarrhea, to immediately give the child liquids. Examples of fluids listed were water, tea, breast milk, and sugar salt solution.

## **EVALUATION RESULTS FOR DIARRHEAL DISEASE**

The diarrheal disease intervention in Central Java attempted to change mothers' knowledge and behavior related to case management of diarrhea and use of oral rehydration therapy. The data for the follow-up were collected in October 1990, during the second phase of the intervention when the messages about continued feeding were introduced. Because the second phase was not completed, this report will focus on the results relevant to the first phase -- mothers' knowledge about giving fluids during diarrhea.

The specific objectives of the first phase of the intervention were to increase correct use of fluids during diarrhea and to increase the use of volunteers, health posts, and health centers as sources of information and help. Intermediate goals were to increase mothers knowledge about the danger of diarrhea, the value of giving fluids during diarrhea, and the availability of help and advice from health volunteers, health posts, and the health centers.

This evaluation examined three questions:

**Did Mothers Give More Liquids During Diarrhea?**

**Did Mothers Learn More About Giving Fluids During Diarrhea?**

**Were Mothers Exposed to the Mass Media Campaign?**

### **Did Mothers Give More Liquids During Diarrhea?**

Overall, we found an increase in reported giving of more liquids in the intervention regency. However, we cannot attribute these increases to the communication program because we found similar changes in the control regency.

Mothers in the sample were asked a number of questions about what they did during their child's last case of diarrhea. These included a question about whether the child was given the same volume, more or less to drink than usual; and whether the child was given any special drinks or more of any drinks. It also included open-ended questions about what was done for the child during the diarrhea. From the above questions, we developed a measure of whether the child had been given any kind of fluids during the last case of diarrhea. The responses to questions about giving fluids during the episode are in Table 12.

On the whole, the majority of mothers in both the intervention and the control regencies in 1988 reported giving some fluids to their child during diarrhea, and this did not change. In 1988, 82 percent of mothers in the intervention area gave liquids, and in 1989, 81 percent reported giving liquids. The numbers were similar for the control regency. However, the other side to this is that approximately one-fifth of the children in the sample were not being given liquids during diarrhea, thus these children are at greater risk of becoming dehydrated.

The findings show an increase in mothers in the intervention regency saying they gave more than usual to drink during diarrhea (from 39 percent in 1988 to 56 percent in 1989). However, the increase was also statistically significant in the control regency, and the difference in responses between the two regencies at each time point was not significant. This suggests that the increase in correct behavior was due to factors other than the ROVITA diarrhea campaigns (e.g., other health activities occurring in Central Java between 1988 and 1989) or that the communication activities of the ROVITA project spread to the control regency.

To look at this further, we asked if mothers in the intervention area had learned about giving liquids during diarrhea, and if their learning differed from that in the control area.

**Table 12**  
**Giving Liquids During Diarrhea**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Gave any liquids	82.2	80.5	82.4	78.3
Gave more to drink	38.9	55.5*	44.7	58.8*
	(n=370)	(n=401)	(n=244)	(n=258)

\*Difference between 1988 and 1989 significant at  $p < .001$ .

### Did Mothers Learn More About Giving Liquids for Diarrhea?

There was a significant increase in knowledge about giving fluids during diarrhea between 1988 and 1989, but again in both the intervention and the control regencies (see Table 13). Knowledge that diarrhea is dangerous increased in the intervention regency from 69 percent in 1988 to 80 percent in 1989 and knowledge that children should drink more during diarrhea increased from 45 percent in 1988 to 60 percent in 1989. The figures for the control regency are very similar, indicating that the special intervention activities were not the only factor explaining knowledge change.

**Table 13**  
**Knowledge about Diarrhea**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Diarrhea is dangerous	68.8	79.5*	77.4	85.3**
Should drink more	45.0	60.3*	46.7	63.8*
	n=480	n=479	n=319	n=312

\*Difference between 1988 and 1989 significant at  $p < .005$ .

\*\* Difference between 1988 and 1989 significant at  $p < .05$ .

Table 14 compares these and two other knowledge questions asked only in 1989 by regency. Overall, knowledge levels did not differ between the two regencies. Mothers in the intervention regency in 1989 were actually less likely to have said that diarrhea is dangerous for a young child (marginally significant at  $p<.06$ ).

**Table 14**  
**Knowledge about Diarrhea in 1989**

	Intervention Regency	Control Regency
Diarrhea is dangerous	79.5	85.3*
When mother should start giving fluids		
Immediately or after the first stool	55.3	53.5
In the first day	16.5	16.0
When the child asks	11.7	16.7
Don't know	16.1	13.5
Other	.4	.3
Child should drink more during diarrhea	60.3	63.8
	n=479	n=312
Why child should drink more during diarrhea:		
Replace fluids/body loses water	43.6	37.2
To prevent weakness	32.2	28.6
To increase energy	8.0	7.5
Child will recover more quickly	11.8	25.6*
To stop the diarrhea	8.3	5.0
To clean the intestines	3.8	3.0
	n=289	n=199

\*Difference between intervention and control regencies marginally significant at  $p<.06$ .

\*\*Difference between intervention and control regencies significant at  $p<.05$ .

On the whole, knowledge about the danger of diarrhea and the need for liquids was quite high by 1990. Approximately 80 percent of mothers in both regencies said diarrhea was dangerous for young children and around 60 percent said children need more to drink during diarrhea. Approximately half knew that a child should be given fluids immediately (as stressed in the radio messages and on the banner) or after the first loose stool. The majority of mothers who said a child needed more fluids during diarrhea, did not mention the replacement of fluids as the reason. These responses indicate areas where improvement is still needed in mothers' knowledge about diarrhea and its effects.

We created an overall measure of knowledge by adding the correct responses for each mother. The scales for each regency ranged from 0 to 4 and were reliable ( $\alpha=.64$  for each scale). There was no significant difference in knowledge between mothers in the two regencies (see Table 15).

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**Table 15**  
**Scale of Knowledge about Diarrhea (1989)**

Knowledge Score	Intervention Regency	Control Regency
0	10.0	7.4
1	23.2	25.0
2	21.9	20.2
3	25.1	28.8
4	19.8	18.6
	n=479	n=312

---

Thus, overall, we see significant changes in giving fluids during diarrhea and in knowledge about the need for liquids, but we cannot attribute the changes to the program's communication activities, because mothers in the regency without the intervention activities showed the same changes. Our next step was to ask whether mothers in both the intervention and the control areas had been exposed to the communication messages of the ROVITA program.

### **Were Mothers Exposed to the Campaign Messages?**

The communication activities in Central Java had two components -- use of the mass media to reach mothers directly and training of health workers and health volunteers, who were then expected to educate mothers about correct treatment of diarrhea.

#### *Mass media*

As can be seen in Table 16, only a small proportion of the mothers in the intervention sample seem to have been exposed to radio messages about diarrhea. This may partly be due to low ownership and listening to radios in Central Java -- in 1989 only 46 percent of mothers in the intervention area said they had a radio in the house and 36 percent listened four or more days a week.

However, in the intervention regency, there was a significant (although small) increase in having heard messages about diarrhea at all and having heard messages in the last two weeks (campaign messages on diarrhea were being broadcast during the time the interviews were taking place). Having heard messages at all increased from 18 percent in 1988 to 26 percent in 1989 and having heard messages in the last two weeks increased from four percent to 12 percent.

The table indicates that mothers in the intervention and the control areas were equally likely to have ever heard any messages on the radio about diarrhea. The most commonly heard messages were about Oralit (packaged oral rehydration solution) and SSS (home-mixed sugar-salt solution), topics that had not yet been covered by the ROVITA radio messages. This indicates that there was other information besides the ROVITA information available on radio in both areas and mothers seemed to remember this material more readily.

Although the levels of exposure to the campaign's diarrhea messages were not high, there were significant increases in having heard messages saying to give more to drink and to continue giving

**Table 16**  
**Mass Media Exposure**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Has heard radio messages on diarrhea	17.9	25.7*	23.5	21.5
Has heard messages in last two weeks	4.4	11.7*	6.0	6.7
	n=480	n=479	n=319	n=312
Radio messages about diarrhea said:				
Give more to drink	5.8	27.6***	4.0	17.9*
Continue fluids	1.2	2.4	1.3	1.5
Give Oralit	51.2	52.8	56.0	65.7
Give SSS	24.4	21.1	24.0	22.4
Continue feeding	0	14.6***	0	6.0
	n=86	n=123	n=75	n=67
Child in messages is named Cempluk	---	8.4	---	1.3**
Has radio in house	42.7	46.3	45.1	50.3
Listens 4+ days/week	29.5	35.9*	41.4	40.7
Has seen banner about diarrhea	---	5.0	---	2.2
	n=480	n=479	n=319	n=312

\*1988/1989 differences are significant at  $p < .05$ .

\*\*Difference between intervention and control is significant at  $p < .05$ .

\*\*\*1988/1989 differences significant at  $p < .0005$ .

foods in the intervention area. Among mothers who had heard radio messages about diarrhea, hearing about more drinks increased from 6 percent to 28 percent and hearing about foods increased from none of the mothers to 15 percent. However, mothers in the control area also showed a significant increase in hearing about drinks.

To try to identify whether the mothers had heard the campaign messages, we asked the name of the child in the messages and the topics covered in the messages. In the intervention area, eight percent of the mothers knew the name of the child in the messages.

Four mothers (1.3 percent) in the control sample also knew the name of the child.

It is possible that some mothers in the control area heard the ROVITA program's radio messages. In March 1989, a cassette tape of 16 radio spots promoting the health posts was distributed to all regency health departments. Two of the spots were the ROVITA/HEALTHCOM messages about fluids. However, on the whole, neither mothers in the intervention regency nor those in the control area showed high exposure to the messages. We then looked at exposure to interpersonal channels, and particularly at the health volunteers and health posts.

### *Interpersonal Channels*

Overall, there were no changes in the percentage of mothers visiting the health facilities or health volunteers between the two surveys (see Table 17). Mothers in the intervention area were more likely to report having been to a health center in the last month in 1989 (21 percent) than in 1988 (15 percent). They were more likely to say they had ever contacted a health volunteer (78 percent in 1989 and 70 percent in 1988). However there was no change in having visited a health volunteer or health post in the last month in the intervention regency.

The responses of particular interest here are whether mothers reported ever hearing information about diarrhea from any of the health workers. In the intervention regency, 28 percent of mothers both in 1988 and in 1989 said they had heard information about diarrhea at a health center and approximately 30 percent said they had heard information about diarrhea at a health post or from a health volunteer. We don't know why significantly fewer mothers in the control regency reported hearing about diarrhea from both sources in 1989, compared to 1988. On the whole, the health volunteers reached less than a third of the mothers with information about the treatment of diarrhea.

**Table 17**  
**Exposure to Health Workers**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
Has ever been to the health center	88.8	92.3	89.7	86.4
Went to center within last month	15.0	21.0*	16.3	13.9
Has heard information about diarrhea at the health center	27.9	28.2	33.5	24.6*
Has ever been to a health post	76.7	78.4	86.2	90.3
Has ever been to health volunteer	70.2	78.0** 8	9.7	90.0
Went to volunteer or post within last month	21.5	18.0	27.9	28.2
Has heard information about diarrhea at post or from volunteer	31.7	29.5	34.2	23.3**
	n=480	n=482	n=319	n=309

\*Difference between 1988 and 1989 significant at  $p < .05$ .

\*\*Difference between 1988 and 1989 significant at  $p < .01$ .

What did mothers remember hearing about diarrhea from the health workers? Table 18 shows mothers responses to this question for health center workers and for volunteers and workers at the health posts. Overall, mothers did not remember hearing about giving their children more to drink at the health center or from a volunteer. The majority said they had been given information about Oralit (packaged oral rehydration solutions) and 555 (home-mixed sugar-salt solution). This suggests that the health workers were passing on what they had learned in their training about Oralit more than the other components of ORT (giving home fluids and continuing feeding).

There were some interesting findings among mothers who had heard information from a health post or volunteer, the major interpersonal channel used in the program. More mothers reported hearing about

giving more to drink and giving special drinks in 1989 than 1988, and fewer mothers reported hearing about SSS. In the intervention area, 4 percent of mothers heard to give more to drink in 1988, increasing to 11 percent in 1989. However, we cannot attribute this change to the ROVITA program because we see a similar increase in the control area. The percentage of mothers saying they were told to give special drinks during diarrhea increased from six to 14 percent in the intervention area, staying at approximately 11 percent in the control area.

Overall, we found that mothers in the intervention and the control areas had similar exposure to interpersonal channels and were hearing similar information from the health workers. The majority of mothers who had heard about diarrhea from a health worker remembered hearing about Oralit or SSS, not about drinks in general. This may be because health workers stressed Oralit more, or because mothers were more likely to remember a special mixture than giving more of everyday drinks.

**Table 18**  
**Information Given by Health Center Worker and Health Volunteers**

	Intervention Regency		Control Regency	
	1988	1989	1988	1989
<b>Information heard at health center</b>				
Give special drinks	6.0	13.2*	14.0	6.6
Give more to drink	1.0	5.9	2.8	11.8
Give Oralit	59.7	59.6	51.4	53.9
Give SSS	30.6	22.1	34.6	31.6
	n=134	n=136	n=107	n=76
<b>Information heard at post or from volunteer:</b>				
Give special drinks	5.9	14.1**	11.9	11.1
Give more to drink	3.9	10.6**	4.6	13.9**
Continue food/ special food	3.3	9.2*	.9	5.6
Give Oralit	63.2	68.3	59.6	63.9
Give SSS	33.6	15.5***	43.1	15.3***
	n=152	n=142	n=109	n=72

\*Difference between 1988 and 1989 marginally significant at  $p < .07$ .

\*\*Difference between 1988 and 1989 significant at  $p < .05$ .

\*\*\*Difference between 1988 and 1989 significant at  $p < .005$ .

### *Summary*

Overall, although there were significant increases in giving more liquids during diarrhea and in knowledge about diarrhea among mothers in the intervention area between 1988 and 1989, we cannot conclude that these increases were the result of ROVITA activities. Similar significant increases were also seen in

Rembang, the control regency. There is slight evidence that the ROVITA campaigns spilled over into the control area. However, the findings suggest more strongly that other educational or promotional activities were taking place in Central Java in addition to the ROVITA mass media messages and training.

## INSTITUTIONALIZATION

The second responsibility of the CHDC in the evaluation of the communication activities in Central Java was to assess the institutionalization of the methodology used in all HEALTHCOM projects. This methodology includes pre-program research to understand the audience and context, strategy development and planning, strategy and message testing, integrated use of multiple channels, monitoring, and evaluation. Overall, institutionalization can be defined as the ability of an institution or set of institutions in the country to continue using the project methodology in future activities and as part of their normal routine of conducting public health education. One question examined here is whether the people in Central Java learned the methodology and are capable of applying it in the future. The second question is whether all or parts of the methodology will be retained when the USAID funding stops and the resident advisors leave. The specific goal for the project in Central Java was "to teach and incorporate systematic social marketing techniques within the Health Department and perhaps Diponegoro University...."

Institutionalization of the methodology was examined primarily through informal interviews in February 1990 with members of the project team about their understanding of the methodology and its usefulness to them in their work on the project and in other current and future activities. These discussions also covered the history of project activities, including incentives and barriers to success, and an assessment of how well the methodology was applied. In addition, we reviewed project documents and materials.

### Learning of the Methodology

The methodology as it was applied in Central Java included: planning, research, communication ~~intervention activities~~, monitoring, and evaluation. The primary method of institutionalizing the methodology was for the project team to participate actively in all the steps and processes, i.e., to learn through experience. Although individual members of the team carried out specific tasks related to their subject expertise, all were exposed to the basic components of the methodology.

By the time the interviews for this evaluation were conducted, the project team had carried out all of the methodology's processes at least twice. These activities are described more fully in the earlier section on the "History of the ROVITA and HEALTHCOM Projects in Central Java."

On the whole, the people involved in the program have a good sense of what the methodology is and about the components of the methodology. They have the experience and skills to carry out similar activities in the future. Some parts of the methodology have been adopted more readily or completely than others -- these include an orientation toward the "consumer", planning (strategies and messages), and pretesting. The two areas which were considered less essential or as luxuries were monitoring and evaluation.

Orientation toward the audience or the consumer was mentioned as an important part of the methodology by all the people interviewed. Overall, the ROVITA team has shown great interest in research results. As soon as evaluation results have been available, the team has reviewed them and used them to make decisions about future activities and policies. Instead of "doing research at their desks," team members have independently initiated several small studies to help them better understand their audience (e.g. a study of why mothers don't go to the health post and a number of monitoring studies). There is a greater understanding of the need to develop materials tailored to the audience's needs and abilities and to pretest these materials to check one's assumptions. One team member discussed his change in thinking as moving from one-way to two-way communication -- from the view of the health professional as knowing all and telling the audience what to do, to the view of wanting to know what the people in the audience need and like and developing a health education program in response to this.

Strategy development was chosen by several team members as the most important component of the methodology. This included working together to determine the problem to be addressed, the target audience, the media to be used, and possible internal and external constraints to success, and then developing a plan for action. The importance of strategy development and planning was understood, and was generally followed, although some activities and materials have been developed without sufficient planning.

One constraint to carrying out this activity on a larger scale is time. All the project staff were very busy people, with a lot of time pressures to develop materials on schedule. In addition to their schedules for ROVITA activities, most were also responsible for carrying out activities mandated by the national government, which did not include time for planning. One team member, although recognizing the importance of good strategy development, saw it as a time-consuming process taking place in a context which requires timely action -- "the hungry stomach can't wait until we have the strategy."

Pretesting is another component of the methodology that was seen as important by the team members and that is expected to continue after ROVITA and HEALTHCOM have left Central Java. Team members have extended this, pretesting and revising materials developed in their work unrelated to ROVITA. Although pretesting is expected to stay, it may be done less formally or less intensively in the future because of lack of money for travel and lack of time. There is a tendency in health department activities not to budget enough time in the production process for pretesting. Another constraint is that many health education messages are decreed from the health department in Jakarta. They either come in an unchangeable format, or the schedule is too tight to allow for pretesting.

Research activities -- pre-program research, monitoring, and evaluation are the activities in greatest danger of disappearing after the end of the project. All the team members saw carrying out their own research as being important, but as being a luxury that they might not be able to afford in the future. This may be because a number of the research activities carried out with project funding were relatively expensive, particularly the ethnographic study and the evaluation activities. In addition, not as much attention was given to training the team in research methods, in particular for monitoring and evaluation, as was given to other components of the methodology (although this may have changed in the year since the interviews).

A constraint is that little research about audiences for health messages is currently available, thus the program has to mount its own research activities. The team members stated that any research done in the future will have to be much simpler and less expensive. If money is not available to do research, they will have to base their strategy development on their own knowledge, and perhaps on a rapid assessment of the audience. Essentially the view was that research will be done if the money is available.

### **Institutional Capabilities to Use the Methodology**

In addition to individual motivation and ability to continue the methodology in Central Java, we need to consider the organizational capabilities, or sustainability of the methodology. First it is important to understand how the ROVITA/HEALTHCOM projects were organized within the Indonesian system.

The project office can probably be best described as a semi-autonomous unit with strong links to the provincial health department and Diponegoro University. All activities were carried out with direct health department involvement (e.g., in policy direction, decision-making, implementation, field work). However, the project had its own management structure and a separate budget provided by USAID and administered through HKI.

The ROVITA project was planned and implemented by a team of senior-level individuals from a number of institutions, rather than being attached only to one unit in the health department (for example, the health education unit). The project coordinator was a physician and professor at the medical school at Diponegoro University. Other members of the management team included the head of the nutrition unit (Vitamin A), the head of the communicable diseases unit (diarrheal disease), the head of special projects in the health education unit (social marketing), and the retired head of the nutrition unit of the provincial health department (field activities), another professor from Diponegoro University (evaluation of activities other than the communication activities), a resident advisor from HKI (administrative and financial management and oversight, working with the project coordinator), and a resident advisor from AED (social marketing). This team received oversight, advice, and policy direction from the national ROVITA steering committee made up of health department officials (nutrition, communicable diseases, and health education) and the HKI country director in Jakarta.

The project offices were physically located in one of the health department buildings, but the project had its own management structure and budget. All the Indonesian team members had other responsibilities in the health department or at the university and worked on ROVITA part-time. The project coordinator and the field director were paid by the project, while other health department staff took time out from their other responsibilities to work on ROVITA. The full-time staff were the American HKI and AED resident advisors, and the local office support staff.

Individual team members worked on their own components of the ROVITA program, but came together frequently to coordinate these efforts and to plan the overall approach. For example, the larger group would meet to plan a strategy, then the social marketing staff would develop specific messages in consultation with

the subject specialist (diarrhea or Vitamin A), and bring them back to the larger group for comment. Each team member contributed from his or her base of expertise.

The location of the project as a somewhat independent unit, but with strong links to the health department and the university, had numerous advantages. It gave the project more administrative and financial flexibility than would have been possible if the project had been incorporated into the health department or university bureaucracies. This allowed the team to accomplish more activities, to implement them on time, and to take some risks with a new method for carrying out health education.

It also provided an atmosphere for cooperation between different units of the health department and university staff. Development of communication activities generally requires coordination between those with subject expertise and those with skills in health education or communication, people working in different units. The health department bureaucracy in Indonesia is not organized to facilitate cooperation between units within the health department or collaboration with outside organizations (such as universities or broadcast producers). In addition, although in theory the health education unit is organized as a support unit to provide materials for other units, it has its own budget, and the extent of real collaboration with other units depends on the efforts of individuals. One team member remarked that it was better for the project to be able to work with as many units in the health department as possible and that, if the project had been attached to a single unit or to the university only, the other project collaborators would have participated at a much lower level.

The other side of this is that, because ROVITA was not incorporated into a single existing institution, the methodology may only become institutionalized within the individuals involved and not be built into routine activities taking place after the end of the project. This is particularly the case for the health education unit. Participation from the health education unit was not from the unit as a whole, but from the director and one assistant of the special projects section. On the whole, the connection of project activities to the health department was through the team members, not through any daily working relationship between the project and the lower-level staff in the health department. Thus, introduction of any parts of the methodology into health department routine will have to come from the directors who were ROVITA team members (as has been the case for some aspects of the methodology, primarily field work and monitoring).<sup>24</sup>

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<sup>24</sup>At this early stage, it is hard to judge the relative merits of teaching the methodology to staff at all levels of a single unit, compared to teaching the methodology to senior staff in a number of units and institutions, as was done in Central Java. Each approach has strengths and weaknesses, and a more informed judgement of sustainability will have to wait until more time has passed and programs of different types can be compared.

One area identified by team members as needing more work in the future was the lack of knowledge about social marketing and lack of skills in research, pretesting, and planning at the lower levels in the provincial health bureaucracy, particularly among the regency health educators. The people who learned the complete methodology were the directors of their departments. Some of their assistants received some training and were involved in project activities (primarily field testing and monitoring), but these individuals don't have an overall understanding of the methodology. In the same way, health department staff at the regency level have been involved in individual activities, but don't know themselves how to pretest and do not have an orientation toward their audience. Social marketing has been introduced to faculty and students at Diponegoro University, but they still lack some of the skills and understanding to be able to carry out a social marketing program. This may change. At the time these interviews were being conducted, there were plans for a workshop on social marketing for the heads of health education at the regency level.

A second constraint identified by those interviewed was the lack of knowledge about and commitment to social marketing at the central government levels. Some said they would like to use the methodology more in their other work, but that they were not given the time or resources to carry out research, planning, or pretesting by the hierarchy above them in Central Java or in Jakarta. There was a sense among some of the people interviewed that the Department of Health was committed to social marketing, but others saw the need for more commitment (particularly in providing the time and money needed to carry out the individual activities), and more understanding and training at the national level. Several people suggested the need for a social marketing association or group to bring together people from all over the country.

The interviews for this discussion were carried out in early 1990. Since then, the national Department of Health has expressed greater commitment to using the health education approach used in the project. The ROVITA team has been asked to help apply the methodology throughout all the regencies of Central Java and, starting in February 1991, to expand the Vitamin A capsule communication program to the entire nation. The Department of Health has committed staff time and donor funds toward these activities. Perhaps as the national and local officials gain more experience with this approach to health communication, they will incorporate the methodology into more of their other activities.

## Summary

On the whole, the members of the ROVITA team had learned the concepts and skills necessary to apply the methodology in future activities. In particular, they had adopted the methodology's orientation toward the audience, the need for strategy development, and the importance of pretesting. Some team members were

applying parts of the methodology in their other work. Original research (pre-program, monitoring, and evaluation) was considered important, but a luxury that might not be affordable in the future. Overall, the methodology was considered by the Indonesians to be expensive and manpower intensive, and team members envisioned scaling back in future applications of the methodology. HEALTHCOM may want to focus attention on where the methodology can be scaled back and where it must be followed more strictly.

Although the methodology had been accepted and used by the individual team members, it had not been incorporated into the routine of either the health department or Diponegoro University at the time these interviews were conducted. ROVITA was a semi-autonomous entity, with strong links to the health department and university bureaucracies. This allowed the project to carry out its activities more efficiently with greater cooperation between groups, but also made the project activities "special" and limited full participation in all phases of the methodology primarily to the project team members. Two constraints to use of the methodology in the future were discussed by the team members -- the lack of understanding of the methodology and the skills to use it by lower-level staff in the health department (particularly the health educators at the regency level) and a lack of understanding of and commitment to social marketing at the national level, particularly in terms of providing the time and money to carry out the different activities. Since these interviews were carried out in early 1990, there are signs of greater commitment at the national level. The national Department of Health has committed time and donor funds to applying the health communication approach to combat Vitamin A deficiency in all of Central Java, and then nationally.

## **Appendix A**

### **Vitamin A Campaign Materials**

**LANGKAH KEDUA : PEMBERIAN KAPSUL**  
**PEMBERIAN KAPSUL VITAMIN A KEPADA SEMUA ANAK**  
**UMUR 1 - 5 TAHUN.**

- PEMBERIAN DILAKUKAN DI MEJA 4 POSYANDU  
PADA HARI BUKA POSYANDU TIAP BULAN FEBRUARI  
DAN AGUSTUS.



**INGAT !**  
**SEMUA ANAK UMUR 1 - 5 TAHUN HARUS MENDAPAT**  
**VITAMIN A 2 KALI SETAHUN**



... BAGI BALITA  
YANG MASIH KECIL ...

- AMBIL 1 KAPSUL  
AMBIL GUNTING
- GUNTINGLAH  
UJUNG KAPSUL  
SAMPAI TERBUKA
- PENCETLAH KAPSUL  
SAMPAI SEMUA  
ISINYA MASUK  
MULUT ANAK

- MINTA IBU  
MEMBERI ASI  
ATAU MINUM  
SESUDAHNYA



INGAT  
SEMUA ISI KAPSUL HARUS MASUK

65-

(English)

SCRIPT  
RADIO SPOT  
RDVITA VITAMIN A CAMPAIGN  
AUGUST 1988

FINAL COPY  
VERSION I

Intro (Music)

F.Vo: Ooh .... Pakne, Pakne, wake up please..../// I want to go to the Posyandu.

M.Vo: (yawning)... Why do you want to go to the Posyandu? ///

F.Vo: It's Cemluk (name of child)... she needs Vitamin A, to keep her eyes healthy///

M.Vo: Bune, Bune ... Cemluk is healthy. Why does she need a Vitamin A capsule?

F.Vo: (laugh) Pakne, you don't know yet, do you?///

M.Vo: Know what ?///

F.Vo: Vitamin A capsules are given to sick children as well as to healthy children, to maintain their health.

M.Vo: Bune ... bune, where can we get the money to buy a Vitamin A capsule?///

F.Vo: Pakne ... pakne, Vitamin A capsules are given free at the Posyandu.

M.Vo: Ooh ... so they're free?///

F.Vo: Yes ... every August and February, .... and now it's August, isn't it Pakne?

M.Vo: Oohh it is. Good!!

Announcer: Right!!! Get Vitamin A capsules (echo) every August and February at the Posyandu, Pos Pelayanan Terpadu. Let's go to the Posyandu to keep children healthy!!

Smash ... fade out (music).

RADIO SPOT  
ROVITA VITAMIN A CAMPAIGN  
AUGUST 1988

FINAL COPY  
VERSION III

Intro ... (music)

F.Vo: Ooh Pakne/I forgot ..., it's August, isn't it Pakne?///

M.Vo: Yes, right!!!, go on to the Posyandu// Although Pakno is healthy, he still needs a Vitamin A capsule for his health.

F.Vo: But ... I forgot ... where is the Posyandu again, Pak?

M.Vo: Bune ... Bune ... if you forget such a simple thing, just go ask the neighbor next door.

F.Vo: Oh.. right, Come on No [Parno], we're going to the Posyandu.

M.Vo: Eh... Bune ..., don't forget, it's free!!!

Extra ... (music)

Announcer: Right!!! Get Vitamin A capsules (echo)  
every August and February at the Posyandu, Pos  
Pelayanan Terpadu. Let's go to the Posyandu to keep  
children healthy!!

Smash ... fade out (music).

FINAL SCRIPT

ROVITA - VITAMIN A CAMPAIGN  
AUGUST 1989

Version 1

Intro (music) - dangdut instrument

The sound of children playing.

Pakne: Well... seeing the kids healthy and cheerful, I feel happy and satisfied Bune.

Bune: Yes Pak, one reason, they are healthy and cheerful is that we take them to the Posyandu.

Pakne: You're right Bune, now we know the benefit of going to the Posyandu. Bune ... it's August; it's time for the kids to get vitamin A capsules so that they will have healthy eyes.

Bune: Oohh.. yes.. time goes fast, it's August already Pak. I'm going to the Posyandu with Cempluk.

Pakne: Bune... remember, even though she has healthy eyes, she still needs a vitamin A capsule that is distributed for free twice a year at the Posyandu.

Bune: Yes, Pakne, I know that vitamin A capsules are for healthy children as well as for sick children.

Pakne: Heh heh heh.

Bune: Okay Pakne, I'm going now.

Pakne: OK. Be careful now!

Smash

ANNCE: Right!! Vitamin A protects the health of the eyes of children under five, so that they become healthy and cheerful. Get a vitamin A capsule at the Posyandu every August and February!!  
Let's go to the Posyandu to keep children healthy!!

Extro

SCRIPT  
REVITA VITAMIN A CAMPAIGN  
August 1987

Version III

Bune: Oh yeah, Pakne, this is August, isn't it? It's time for Cempluk to get a vitamin A capsule.

Pakne: Hey, you almost forgot. Don't forget: every August and February are the times for vitamin A capsule distribution at the Posyandu.

Bune: Well, if I forget please remind me, Pak.

Pakne: [laughing] Heh heh heh.

Bune: Vitamin A is good for children who are sick or children who are healthy.

Pakne: Vitamin A is beneficial. Look at Cempluk: she looks healthy and happy. Well, I feel happy Bune. [laughing] Heh heh heh.

Bune: Yes, that is because we've been taking her to the Posyandu, Pak.

Pakne: Well, off you go to the Posyandu. Take Cempluk along.

Smash

Annor: Right!! Vitamin A protects the health of the eyes of children under five, so that they become healthy and happy. Get Vitamin A capsule at the Posyandu every August and February!!  
Let's go to the Posyandu to keep children healthy.

Extra

## **Appendix B**

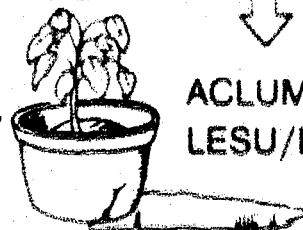
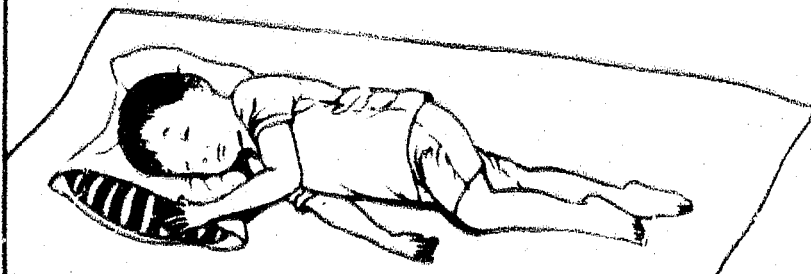
### **Diarrhea Campaign Materials**

## 2. APA BAHAYA DIARE ATAU ISING - ISINGEN ?



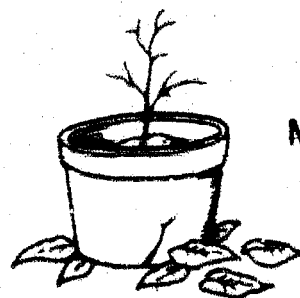
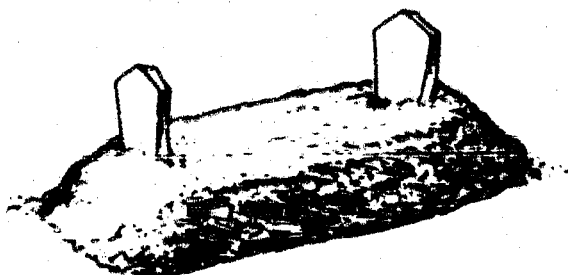
KURANG CAIRAN

KALAU DIBIARKAN



ACUM/LAYU/  
LESU/LEMAS

KALAU DIBIARKAN



MATI

INGAT !

KEMATIAN AKIBAT DIARE DAPAT DICEGAH !

CARA PENCEGAHAN PALING BENAR IALAH : SEGERA BERI MINUM !!!

2. BILA MASIH MENETEK,  
TERUSKAN PEMBERIAN ASI,  
MAKIN SERING MAKIN BAIK !



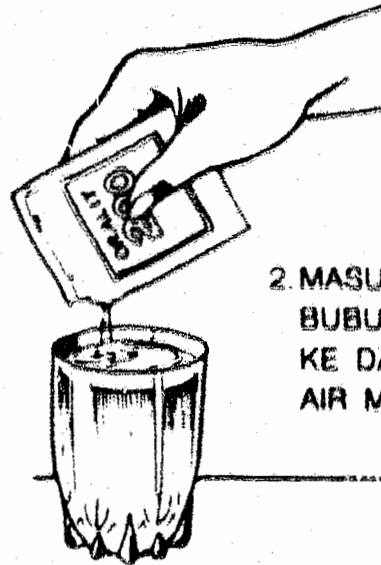
3. BERI MAKAN SEPERTI BIASA.



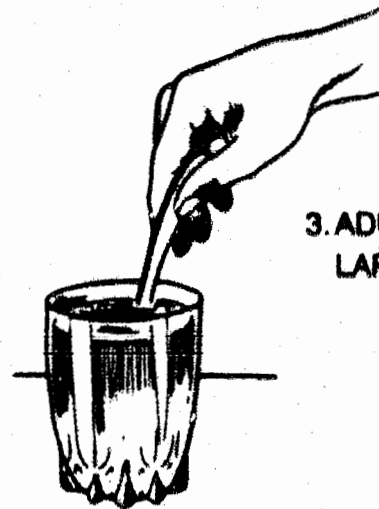
INGAT !  
MEMBERIKAN MINUMAN, ASI DAN MAKANAN LEBIH BANYAK DAPAT  
MENCEGAH KEMATIAN AKIBAT MENCRET

B. PERAGAKAN KEPADA IBU  
CARA MEMBUAT LARUTAN  
ORALIT SEBAGAI BERIKUT :

1. SEDIAKAN AIR MATANG  
YANG SUDAH DINGIN  
SEBANYAK 200 CC ATAU  
SATU GELAS BELIMBING PENUH !



2. MASUKKAN SELURUH  
BUBUK "ORALIT 200"  
KE DALAM GELAS  
AIR MATANG.



3. ADUKLAH SAMPAI  
LARUT BENAR.

4. TANYAKAN, "APAKAH PERLU  
DIJELASKAN LAGI ?"

(English)

SCRIPT  
RADIO SPOT  
ROVITA DIARRHEA CAMPAIGN  
SEPTEMBER 1999

VERSION I

Intro (Music)

(background - baby's crying)

Pakne: The baby is crying all the time///Bune ..... why is she crying all the time?///

Bune: Cemluk has diarrhea!!!/that is why I force her to drink more.

Pakne: She has diarrhea Bune, why do you force her to drink?

Bune: When she has diarrhea, she will be dehydrated/and dehydrated is very dangerous for balita's health, that is why she should drink much.

Pakne: Ooohhh... so drinks can replace the lost body fluid?

Bune: Yes, Pakne!/that is correct!!!///

Pakne: Ooohhhh, so I see.

Announcer: Right!!! When your balita has diarrhea/give him/her more drinks to replace the lost of body fluid.

Smash off... extro ... (fade out - music)

(English)

SCRIPT  
RADIO SPOT  
ROVITA DIARRHEA CAMPAIGN  
SEPTEMBER 1988

VERSION II

Intro dangdut music  
(background - situation in a village)

Ibu I : Bu Renggo.../why does Slamet (name) look so pale and weak, is he sick?

Ibu II: Yes he is/he has diarrhea, that is why I don't give him drink and food, I am afraid his diarrhea will get worse///

Ibu I : Oohh... that is not right Bu Renggo (name)!!//When a child has diarrhea, he should be given more food and drinks///

Ibu II: Why?///

Ibu I : Because, a child with diarrhea will loose most of his body fluid, so his body will become weak//To replace the lost fluid he should eat and drink more///

Smash dangdut (music)

Announcer: That is right!!/When your balita has diarrhea/give him/her more drinks to replace the lost of body fluid.

FINAL SCRIPT

ROVITA PROJECT - RADIO SPOT  
ORT - 2nd Phase

August 87

Version 2

Intro (Music - dangdut instrument)

Ibu: Assalammu'alaikum!!

Kader: Waalaikum salam .. ooh Bu Renggo, please com in.

Ibu: Sorry to disturb you. I want to ask you something:  
Cempluk had diarrhea this morning, and according to my  
husband I shouldn't give any food or drinks. Is that  
right, Bu kader?

Kader: Oh, that's wrong, Bu Renggo. A child who has diarrhea  
loses body fluids and nutrition and essential nutrients  
through the stools, and child will become weak.

Ibu: So should/must we continue giving food and drink as soon  
as a child gets diarrhea?

Kader: Yes, you're right!!

Ibu: What kind of food, Bu kader?

Kader: The usual food, or give her special food, such as  
porridge, rice porridge with vegetables, tofu or tempe.

Ibu: Oh.. Okay. Thank you, Bu kader, I have to go home now.

Kader: You're welcome, Bu Renggo ... If you need anything else,  
don't hesitate to ask.

Ibu: Okay, Bu.

Smash

Annccr: Right!!! Drinks and food should be given continuously to  
children who have diarrhea, because food and drinks will  
replace the body fluids and nutrition and essential  
nutrients that are lost with the diarrhea.

Extro

draft

KADER MOTIVATION

August 89

I

Intro (music dangdut)

Ibu I: "Well ... Cempluk looks cheerful, healthy and lively.  
She has recovered from diarrhea, hasn't she?"

Ibu II: "Alhamdulillah ... I continue giving her drink and  
nutritious food and Cempluk gets well".

Ibu I: "Hey ... who told you that a child who has diarrhea should  
be given food and drink?"

It : "Bu kader posyandu told me, bu Siti, who weighs children  
at the posyandu in our village. Well ...well those kader  
are really something, they know many things to keep our  
children healthy and they always willing to help us".

Ibu I: "Ooohh..well, I will listen to their advice, and take my  
children to the posyandu every month.

Music

Annncr: "Right!!", kader posyandu works voluntary for the future  
of our children, the future of our village, and the future  
of our nation without expecting rewards. We thank them  
and highly appreciate their efforts.  
Let's go to the posyandu to keep our children healthy.

Sm: .... fade out